MARINE CORPS

GAZETTE

FEBRUARY 1953 • THIRTY CENTS

MARINE CORPS
GAZETTE

FEBRUARY 1953
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COVER

Casualty In Korea, a tiny color transparency from which our cover was made is worth $2,000. The photo was taken by Sgt Frank D. Praytor while he was on duty as a combat correspondent with the 1st Marine Division in Korea. Entered in *Photography* magazine's annual photo contest on a "whim," it won the $2,000 first prize for Praytor over 73,296 other entries. It is used on our cover through the courtesy of the Ziff-Davis Publishing Company, publishers of *Photography*. The back cover shows a picture of Sgt Praytor and "friend," taken near the Bunker Hill area in Korea where the prize winning photo was made.

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Opinions expressed in the Gazette do not necessarily reflect the attitude of the Navy Department nor of Headquarters, United States Marine Corps

message center

History of Fire Teams

Dear Sir:

In his article on the "Birth of the Fire Team" (November 1952 issue), Lt L. M. Holmes quite accurately states that early in WW II "it was an idea which was jelling in many minds."

He cites the early experiments of the 3d Battalion, 24th Marines in the summer of 1943. For the record, other early experiments were those conducted by the 2d Battalion, 22d Marines under the command of then LtCol T. D. Marks. Early in 1943, Capt Robert Felker of E Co, 2d Battalion, was an ardent advocate of the organization of rifle squads into three-man fire teams, and so organized his company.

Intensive training among the volcanic rocks and coconut palms of the Mulefanua plantation in British Samoa refined the mechanics of fire team operation, and soon demonstrations were conducted for other units.

The organization and tactics evolved proved successful in the attack and seizure of Eniwetok atoll in February 1944, and were then supplanted by the official four-man fire team and thirteen-man squads.

OWEN T. STEBBINS
Maj, USMCR
Oakland, Calif.

Dear Sir:

I read with deep interest the account by Lt Lee M. Holmes in the November issue and appreciate that the lieutenant did a very fine job.

There are two points which the article did not consider. I believe that the manual issued by Gen Merritt Edson on the subject of fire teams was not available to the author. I saw a copy of the manual after my battalion had given a demonstration of the fire team technique for MajGen Julian C. Smith, when he was commanding general at Camp Lejeune in January 1943. I was then CO, 1st Separate Bn, (reinf), later 1st Bn, 24th Marines.

After we had given our demonstration of a battalion assault through the scrub and brush terrain at Camp Lejeune, Gen Smith questioned me about the training schedules I had made which incorporated the

fire team scheme. He also asked if I knew Gen Edson. I assured him that I was not acquainted with him. After that statement he showed me the training manual from Gen Edson with the diagrams of the formations of the fire teams. My training schedules were almost duplicates of the ones used by Gen Edson.

I believe that the 1st Bn, 24th Marines was well-grounded in the fire team principle before it was incorporated into the regiment.

JOHN J. DOLAN
LtCol, USMCR (Ret)
Brooklyn, N. Y.

Each month the GAZETTE pays five dollars for each letter printed. These pages are intended for comments and corrections on past articles and as a discussion center for pet theories, battle lessons, training expedients, and what have you. Correspondents are asked to keep their communications limited to 200 words or less. Signatures will be withheld if requested; however, the GAZETTE requires that the name and address of the sender accompany the letter as an evidence of good faith.

Leatherneck Alumnus

Dear Sir:

While on leave in Tokyo last week, I was fortunate to pick up a copy of the October *Gazette* at the PX. Since my discharge from the Corps in 1948, I have always looked forward to the professional magazine whenever it has appeared on the newsstand.

Being a regular Army officer in armor, my first love is naturally the *Armor Magazine*, but your October issue of the *Gazette* caught my eye immediately with its impressive cover. I then turned to the article my interest had been attracted by, *March of the Iron Cavalry*. Lynn Montross has done an excellent job in this feature; however, I believe he forgot to mention units of the 72d Tank Bn which fought along with the Marines, but then this article was strictly Marine Corps . . .

JOHN A. ALBREE
1stLt, USA
Korea

GUADALCANAL
1942-43
RABAUL
1943
TARAWA
1943
KWAJALEIN
1944
ENIWETOK
1944
GUAM
1944
SAIPAN
1944
PHILIPPINES
1944
IWO JIMA
1945
OKINAWA
1945
TOKYO
1945
KOREA
1950-?

SALUTE TO A 15-YEAR VETERAN

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Proved at Guadalcanal, it soon became the backbone of shore-based Marine and Naval air, supporting the relentless advance across the Pacific—Rabaul, Tarawa, Kwajalein, Eniwetok, Guam, Saipan and other history-making engagements.

At the close of 1944, the battle-proved Corsair was taken aboard aircraft carriers to meet the threat of improved Japanese aircraft. It went on to Okinawa and Iwo Jima and was on hand for the surrender in Tokyo Bay.

At the end of the war, the Corsair was the only piston-engine fighter whose performance for the Allies was advanced enough to warrant continued development on an uninterrupted post-war production schedule.

That's why it was ready for use by United Nations forces at the beginning of the Korean conflict in June 1950, and soon was accounting for 82% of all close air support sorties flown by Navy and Marine pilots against targets assigned by air support controllers in Korea.

Since the Corsair was first wheeled from the production lines, more than 12,000 of the gull-winged craft have been built, including a large order for the French Navy just completed. During the years many engineering and production changes have been made—but it is still basically the same stout-hearted fighter it proved itself at Guadalcanal a decade ago.

The Corsair has been in continuous production longer than any other military airplane. And *still* this great veteran goes on making aviation history!

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MINUTES INSTEAD OF HOURS—In just 28 minutes New York Airways' big Sikorsky S-55s can speed loads of air-mail between 3 major airports in the New York City area. Motor trucks took hours. Eventually these helicopters will carry passengers and freight, as well as mail, to 40-odd cities in nearby New York, Connecticut and New Jersey.

AROUND THE WORLD WITH THE FLYING JACK-OF-ALL-TRADES

HIT AND RUN—U. S. Marine ingenuity and cooperation solved the problem of how to launch a rocket attack on enemy strong points, then shift positions before rocket smoke trails and dust could be used by the enemy as a guide for counter-battery fire. Here a Sikorsky Marine helicopter positions the rocket launcher and ammunition a short distance behind the front lines.

SAVING TIME AND EXPENSE—More efficient use of time is always an objective in modern business. To provide speedy, flexible transportation, the Rockwell Manufacturing Company of Pittsburgh, Pa., has adapted a Sikorsky S-55 to its extensive operations. Now engineers and operating executives go by helicopter from plant to plant. The company says overhead savings will be substantial.

LIFTED TO SAFETY—Hovering over simulated destruction, a Sikorsky helicopter shows its versatility at the Federal Civil Defense Staff College by plucking an "injured man" from the ruins of a "bombed" 5-story building. Civil Defense officials say "There is no limit to the work these helicopters can do . . . in time of war . . . in any emergency."

SIKORSKY AIRCRAFT

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Correction Please

Dear Sir:

I read with great interest *Marine Artillery in Korea* (November *Gazette*). Having been a member of 2/10, and later of 3/11 during August 1950, I would like to make one correction. The 3d Bn did not arrive at Camp Pendleton on 5 August as the writer states.

To begin with, 2/10, (which later was redesignated 3/11) was to stay at Camp Lejeune and become the nucleus for reforming the 10th Marines. This plan was short lived, as orders were received about 10 August to begin activation of the 7th RCT from elements of the 2d Mar Div.

Second Battalion, 10th Marines departed Camp Lejeune on 12 August, and upon arrival at Camp Pendleton on 17 August, was redesignated 3/11.

WILLIS T. HOWLAND
Capt, USMC
Camp Pendleton, Calif.

Leatherhead Booster

Dear Sir:

Here is my check for three books listed on the order blank. *Leatherhead in Korea* sounds as though it should be as interesting as *Leatherhead in Boot Camp*. . . .

Since I am a tanker headed for Korea . . . I appreciate and study all articles about Korea. Useful information can be picked up from your articles. . . . Congratulations . . . on your articles on Korea.

R. E. HARRIS
2dLt, USMC
San Clemente, Calif.

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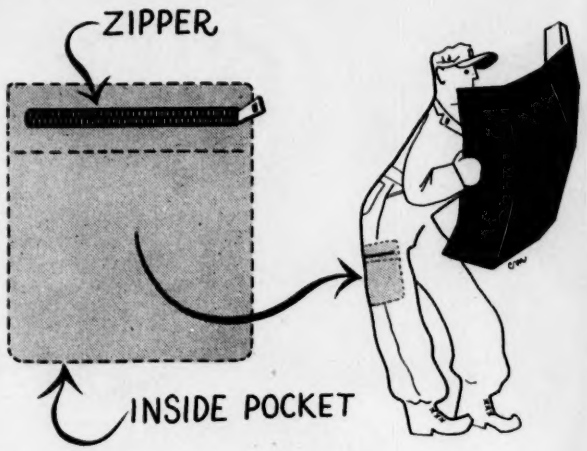
Is Car Used for Business Purposes Other Than to and from Work?____ Yes____ No____

Name & Rank____

Military Address____

If car not at above address, give location of car.____

More Pocket Space



Dear Sir:

Enclosed herewith is a sketch of an idea borrowed from aviators' many pocketed suits. I have modified a couple of my utility trousers in the manner shown in the sketch with waterproof material.

I have found these pockets very convenient for stowing maps, note books, and similar small articles that normally find their way into either the breast pocket . . . or the hip pockets, to be lost or partially destroyed.

E. J. PARADIS
Capt, USMC
FPO, San Francisco, Calif.

Teletype Headaches

Dear Sir:

I am writing this letter with the hope of correcting a major communication repair problem. The headache — the AN/PGC-1, or more specifically, the TT-4, a major component.

This particular teletypewriter is designed to replace the TG-7, an older and bulkier model. Unfortunately the TT-4 has proved to be vastly inferior to the older model in performance and general dependability.

In an attempt to reduce weight, the manufacturer has sacrificed sturdiness and simplicity of repair, which of course greatly reduces its value in the field. Expense is another very important factor we have to deal with in considering repairs to the TT-4. It is often necessary to replace whole assemblies in the TT-4 as compared to the TG-7 which requires little or no replacements.

JAMES J. GALLAGHER, JR.
SSgt, USMC
Korea

Ned H. Dearborn (left), president of the National Safety Council, presenting Award of Honor to Cleo F. Craig, president of the American Telephone and Telegraph Co.

BELL TELEPHONE COMPANIES RECEIVE HIGHEST AWARD OF NATIONAL SAFETY COUNCIL

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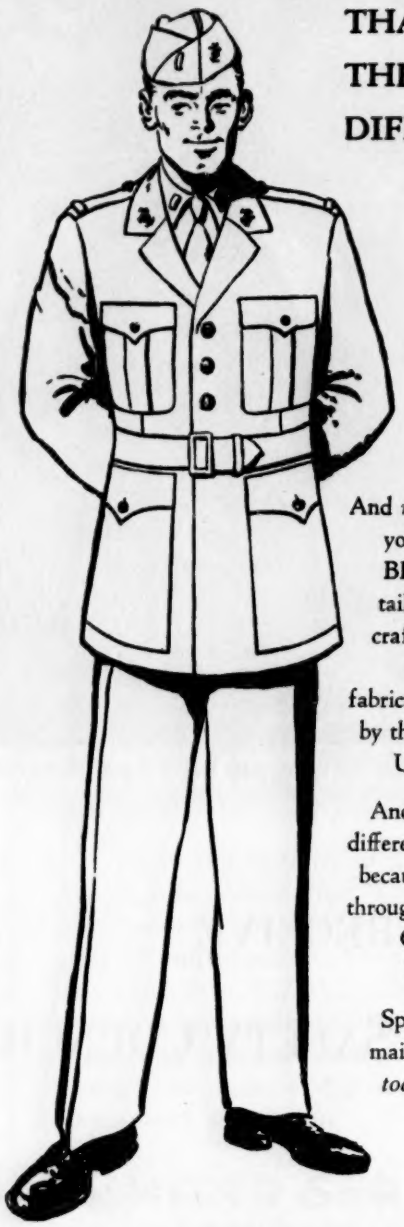

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Overcoats and Socks

Dear Sir:

The interest and suggestions of Corporal Schaeffer to improve the appearance of Marines augurs well for this new breed. While in full agreement that something should be done, I am not in agreement that "brevity" is the proper approach. On the contrary, I think that we should direct our approach along the lines of length.

The overcoat is no longer worn in the field, but is for dress and daily wear. Let us then have a coat that comes down to the calf with a slight flare at the bottom and a waistline that is at a man's waist and not up under his rib cage. It should be made of a 21-ounce material and lined with one of the new metallic cloths for heat retention and warmth. The style for officers and men should be the same.

As for the sloppy appearance caused by the present sock when worn without garters, or the bare leg effect when the sock is rolled or folded, I suggest that the sock be made longer, to come up over the calf with an elastic in the top to hold it there. The pressure of the elastic is not noticeable at that point as contrasted with the choking found with the ankle length sock.

A longer, properly styled overcoat and a longer sock will not only do much to add to the appearance of Marines, but will keep them warmer.

W. F. Frank
LtCol, USMC
Washington, D. C.

Foreign Derivatives

Dear Sir:

It is possible just a little to expand the most interesting article, *What's Your Rank?* by TSgt Edward J. Evans.

For example, the term *soldier* can also be traced to *solidarii,* the hired mercenary who fought for *soldi,* or money.

Infantry derives from the French *fanterie* or *infanterie,* a corruption of the Italian. For some time beyond 1550, Italian commanders used to speak of their troops as their "boys," *fanti;* or collectively as *fanteria.*

Four companies or squadrons were originally called by the Italian term of *battaglia.* This was soon corrupted into "battalion" when the medieval "band" was replaced by organized formations at the time of the inauguration of the first standing army by Charles VII of France (1422-1460).

In early times the companies placed under the colonel's command were said, in French, to be under his regiment. From that it was an easy step to employ the collective term and refer to "Colonel A—'s regiment."

In medieval times a lance meant not only a weapon, but a combat team of one man-at-arms, three bowmen, a cutler, and a page; all mounted and armed

Which way's the wind blowing?

YOU CAN'T TELL—if you try to track this balloon. Because it's drifting at 40,000 feet—out of sight and beyond the range of optical tracking systems! But a new radar, developed by RCA for the military, can clearly "see" the balloon in any weather—track it accurately—tell how high it is—show how fast it's moving. *Result: Exact wind direction and speed information at specific altitudes!*

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cap-à-pie. At this period a spy was termed, with rare delicacy, an *explorateur.*

In the days of Wallenstein and the Thirty Years' War (1618-1648), the captain-general held supreme command. Immediately under him was the lieutenant-general, invariably the commander of the cavalry. He acted as second in command. Then a long way after came the field marshals; in no way to be confused with Napoleon's Marshals of the Empire or the present-day Marshals of France, individuals of infinitely greater consequence.

In the British Army there was no rank of sergeant in the cavalry until the early part of the 19th century; the grade then being known as Corporal of Horse, as it is in the British Household Cavalry to this day. Incidentally, all the old writers on military subjects spelled "Serjeant" with a "j," a practice only modified by non-military writers in relatively recent years.

REGINALD HARGREAVES
Maj, British Service (Ret.)
England

Volunteer Extensions

Dear Sir:

Inasmuch as I have been delegated to make many recruiting talks throughout my regiment, the article by 1stLt Jay Bullen in the November issue of the *Gazette* was of special interest, as were several previous articles on this subject.

One problem I am constantly confronted with is that of the inductee who is desirous of staying with his regiment and his buddies . . . From available information given me there is no provision for such a man to extend his Selective Service time nor for him to be retained on active duty during part of his obligated six-year reserve cruise.

I sincerely feel that this situation presents a source of increasing our present personnel for the next year or so. And once a man has extended, the desire to remain in the Corps will be much greater. Your comment and directives in this regard will be greatly appreciated.

BERT C. SPITZLEY, JR.
Sgt, USMCR
Camp Pendleton, Calif.

Colorful Glossary

Dear Sir:

Have just finished reading *Marine Corps Glossary* in the November issue of the *Gazette.*

This enlightening article seemed, with one exception, to be very complete. That one exception, with all due respect, is — *Jarhead* — a term generally applied by any Naval personnel to any Marine Corps personnel.

J. S. TIERNEY
YN1c, USN
Charlottesville, Va.

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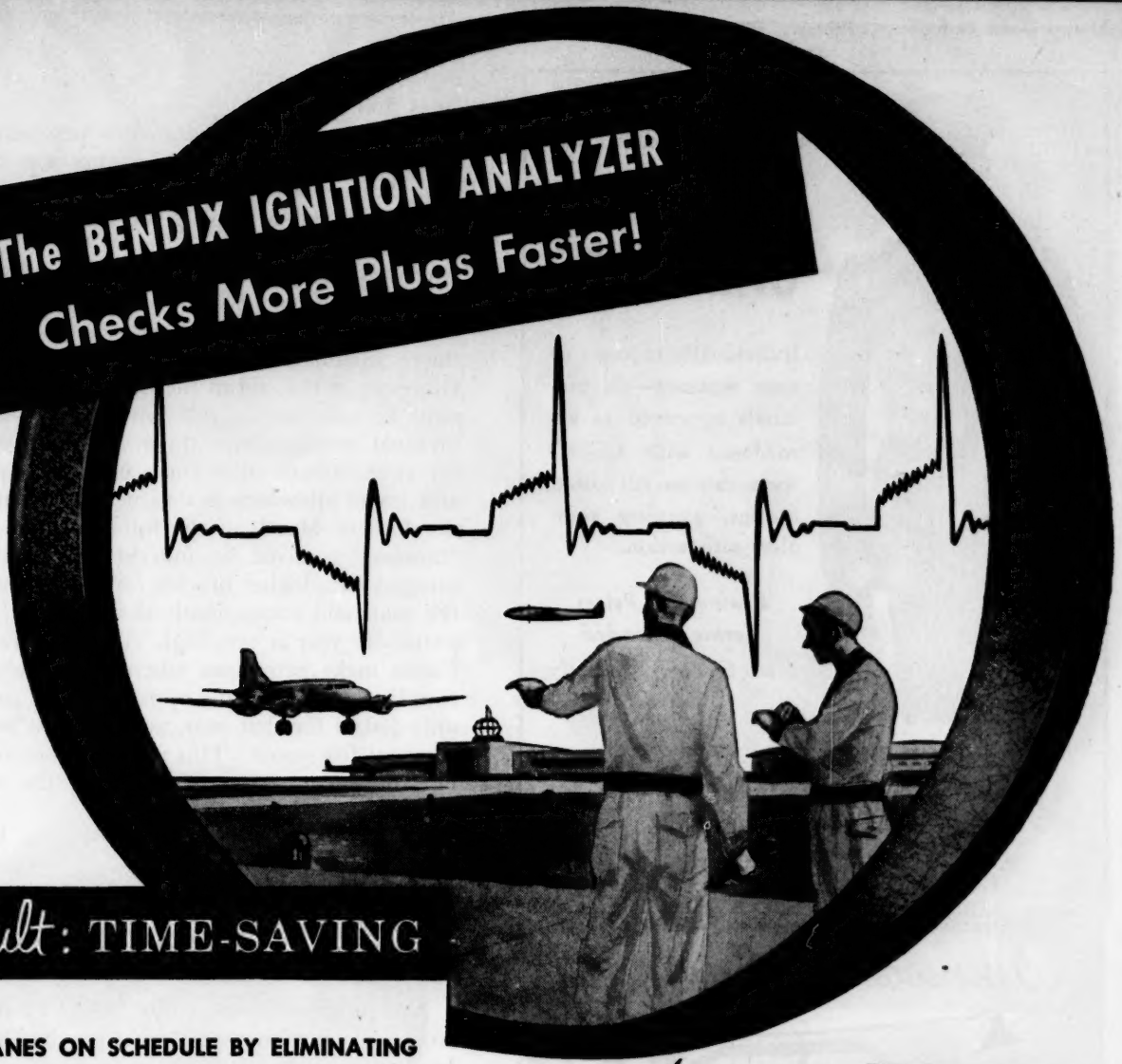

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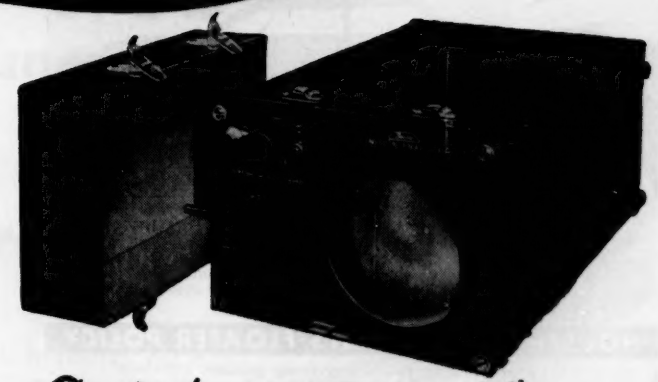

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DEAR SIR:

. . . Recently, a serviceman's pay was increased. Shortly thereafter, withholding tax was put into effect. Servicemen do gripe about income tax. However, their biggest gripe is the fact that the re-enlistment bonus is taxable . . .

Why, after such an incentive is afforded personnel, does the government tax this so-called bonus? Another gripe heard from a lot of servicemen is the fact that the re-enlistment allowance is for service in the future. However, at the end of the calendar year, income tax must be paid on the full sum of $360.00. If an individual re-enlists near the end of the calendar year, his re-enlistment allowance, unused leave payment, and travel allowance is taxable and payable prior to the 15th of March of the following year. All these "bonuses" received by individuals put men in this category in a higher bracket for money earned during the year, and consequently their income tax for that particular year is very high. Why doesn't the Armed Forces make provisions whereby an individual who re-enlists is afforded the opportunity of paying tax on only $60.00 for that year, and tax him on $60.00 for the next five years? This would eliminate the higher bracket for money earned during the year a man re-enlists . . .

FRANK W. ESPOSITO
TSgt, USMC
Cherry Point, N. C.

Salute to Crumb

Dear Sir:

A regulation salute is due MSgt "Charlie" Crumb from every professional Marine for the fine articles he has had published in the *Gazette*.

His writings reflect the thinking of a top notch NCO on subjects which are vital to every Marine — they give us all, officer and enlisted, something to really work for. . . .

CLIFTON RICH
1stLt, USMC
Ft Sill, Okla.

Using the Memo Book

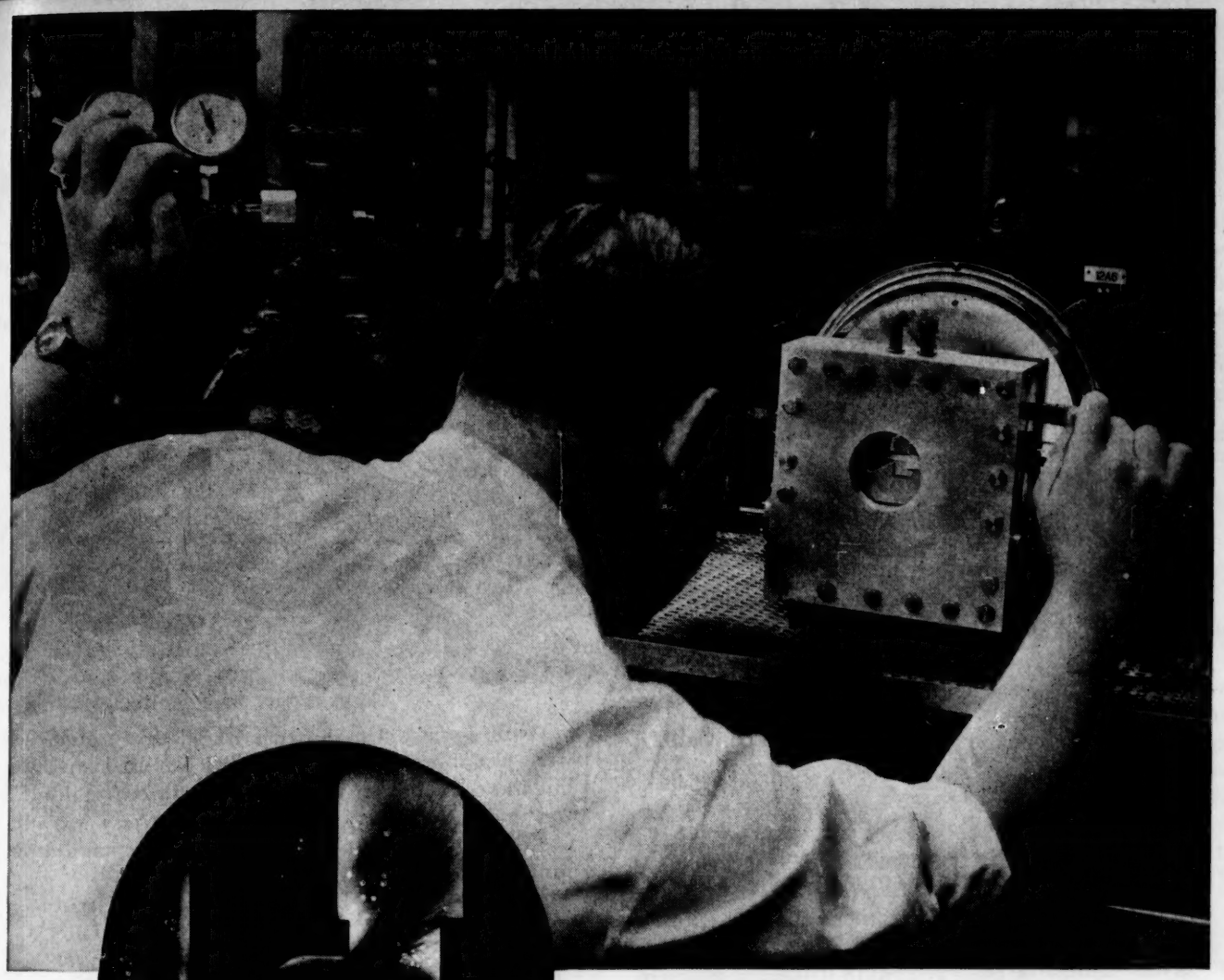
Dear Sir:

This is being written in reference to TSgt L. Frank's letter which appeared in the December issue of the *Gazette*.

As Sgt Frank's successor, I am now the possessor of his memo book. After carefully reading the data contained therein, I must say that his was a splendid idea. It certainly will make going on maneuvers much easier for my department.

If my outfit should go on maneuvers again, I intend keeping a similar notebook for my successor.

NORMAN BERG
Sgt, USMC
Cherry Point, N. C.



Fundamental Research for Tomorrow's Aircraft

This Sperry engineer is applying the fundamentals of hydraulics to determine oil flow characteristics at high pressure. Here he introduces nitrogen to the hydraulic fluid in a complex valve to make flow patterns visible for study.

This is an example of the fundamental engineering which precedes the design of high-power booster servos for use in automatic as well as manual flight.

Automatic controls for tomorrow's aircraft require extensive fundamental research. Not only in hydraulics, but in aerodynamics, electronics and gyros, Sperry engineers are establishing new sets of rules to work under.

For 40 years Sperry has been working continually on flight control problems. Currently, Gyropilot* flight controls are flying jet, propeller-driven, rotary-wing, lighter-than-air and pilotless aircraft.

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Shipping Gear

Dear Sir:

I should like to make a suggestion regarding the shipment of household and personal effects of personnel being separated from the Marine Corps. Many letters come to our supply department office from discharged personnel asking how they should go about having their effects shipped at government expense. In reply, we tell them to send us copies of their Certificate of Discharge (Marine Corps Memorandum 106-51). In most cases they do not have the certificate and must write to the Commandant of the Marine Corps to secure a copy. All in all, the process takes weeks, sometimes even months.

I believe that those Marines who are entitled to shipment of their effects at government expense should be informed at separation centers, at the time of their separation, that they must furnish a Certificate of Discharge when making application for such shipment. This will save much time and labor for all concerned.

R. St. Germain
TSgt, USMC
San Francisco, Calif.

Strike and Conquer

Dear Sir:

While reading LtCol Nihart's article, *Mao's Strategic Defensive,* (November *Gazette)* I was continually reminded of the words of another respected Chinese leader, Sun Tzu in his book *On the Art of War* . . . "What enables the good general to strike and conquer, and achieve things beyond the reach of ordinary men is foreknowledge."

K. S.
Camp Pendleton
Calif.

Covers for Framing

Dear Sir:

The cover of the December issue of the *Gazette,* in my opinion, is most beautiful. I am very anxious to secure a copy for framing. Will you please inform me how I may get one?

Mrs. Thomas Dunn
Plainfield, N. J.

Ed: Regrettably we are not set up to furnish cover reproductions. Inasmuch as the *Gazette* is published by a non-profit organization, cost of furnishing cover reproductions would be prohibitive.

By Your Leave

Dear Sir:

To begin with I would like to say even though I am a comparatively new member of the Corps and just beginning my subscription to the *Gazette,* that I enjoy this magazine very much and have read my first two issues from cover to cover.

In reference to the October, 1952 issue, however, I did find a mistake in military courtesy. This mistake occurs in *The Sunday Punch.* The lieutenant in question in the story repeatedly uses the second person when referring to his senior, a major. "I'm afraid I misunderstood one of *your* statements, sir. It seems to me *you* said . . ."

While I was down at Parris Island this summer we were just short of horse-whipped if we used anything but the third person when referring to our seniors. I was under the impression that this courtesy was supposed to hold true up the chain of command from junior to senior.

Robert Timmons
PFC, USMCR
Woodhaven, N. Y.

Trailers

Dear Sir:

About two years ago a survey was made at the post in California where I was stationed to determine if, in the event that the Marine Corps established trailer camps at or near each base, individual Marines would be interested in purchasing their own trailer.

I don't know the results of this survey, but, according to the *Navy Times* it seems that the survey received favorable comment and the Corps is going ahead with the idea. The article states that the Marine Corps is receiving trailers to be based at Twenty-nine Palms, and already has them at Camp Lejeune, Quantico, Cherry Point, and Camp Pendleton.

I suggest that while these parks are being established, make them large enough to accommodate, in addition to the regularly parked government-owned trailers, several hundred privately owned house trailers.

In connection with this program, trailers might be made available to individual Marines at wholesale; or less tax and middleman's profits, through the same agency which supplies the government, or through a similar department.

Edward A. Hulbert,
MSgt, USMC
Nashville, Tenn.

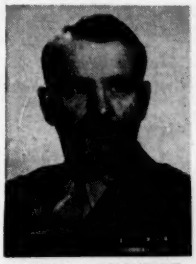
our authors

Capt Paul E. Sanders, who authored our lead story *Let's Work Nights,* is, at present, company commander of Headquarters and Service Company of the Schools Demonstration Troops at Quantico.

CAPT SANDERS

He attended Ball State Teachers College and the Indianapolis College of Pharmacy in his home state of Indiana before entering the Marine Corps in 1941. A Korea veteran and a holder of the Bronze Star, he speaks from experience in his appeal for more night fighting training for infantrymen.

LtCol Victor J. Croizat sings the praises of the LVT (A) in *Amphibian With A Future,* which traces the history of, and prospects for the vehicle.



LTCOL CROIZAT

Born in Tripoli, LtCol Croizat was commissioned in 1941, following his graduation from Syracuse University. He has successfully completed the Command and Staff Course and the Ecole de Guerre.

During World War II, LtCol Croizat was commander of an amtrac company on Guadalcanal, and later served as CO of an amtrac battalion through the Marshalls, Saipan, Tinian, and Iwo Jima campaigns. He holds the Bronze Star and Commendation Ribbons with Vs, the PUC with three stars, and the Asiatic-Pacific Ribbon with six stars.

Currently an instructor with the Tactical Operations Group at Marine Corps Schools, LtCol Croizat has authored several other articles on mechanized warfare for the *Gazette.*

Another authoritative article on the U.S.S.R. is Col J. D. Hittle's *Russia's Achilles' Heel,* the first installment of which begins on page 48. The colonel previously rang the bell with *Background for Russian Action* in the January, 1952 *Gazette.*

Col Hittle holds degrees from Michigan State College and the University of Utah, the latter a master's in oriental history and geography. He is a member of Phi Kappa Phi, a national scholastic honorary society. Since entering the Marine Corps in 1937, he has served aboard ship, as an instructor at Marine Corps Schools, with the NROTC unit at the University of Utah, in China, and with the 3d Mar Div at Iwo Jima where he won the Legion of Merit. He is currently legislative assistant to the Commandant of the Marine Corps.

The Navy's Director of Current History, **Cdr James C. Shaw,** penned the piece *I'd Had It* for the *Gazette.* He has been a Navy historian for over three years following a long period as a line officer.

CDR SHAW

Cdr Shaw, a native of Minnesota, graduated from the Naval Academy in 1936 and has attended the Fire Control School and Naval War College. He has served on ships ranging in size from the *USS Litchfield,* a destroyer, to the *USS Bunker Hill,* an aircraft carrier. He holds the Silver Star, two Bronze Stars, the Purple Heart, and wears two Presidential Unit Citations.

Michael O'Quinlivan worked with Lynn Montross in a research capacity for the article on autogiros. Employed by the Historical Branch at Headquarters Marine Corps, Mr. O'Quinlivan holds degrees from Catholic University and North Carolina. He previously served with the Army on active duty and as a civilian with the Adjutant General's office in Washington, D. C.

MR. O'QUINLIVAN

LtCdr Trevor Blore is the author of the article *School for Warriors* which tells the story of British Royal Marine Commando training.

LTCDR BLORE

After first entering service in 1919, Cdr Blore resigned from the Royal Australian Navy in the '20s, then returned to active duty in 1940 as a lieutenant in the Royal Naval Volunteer Service. Following a tour of anti-submarine escort duty, he was assigned to the admiralty in a press relations capacity. He then was attached to the staff of the Commander-in-Chief in the Mediterranean.

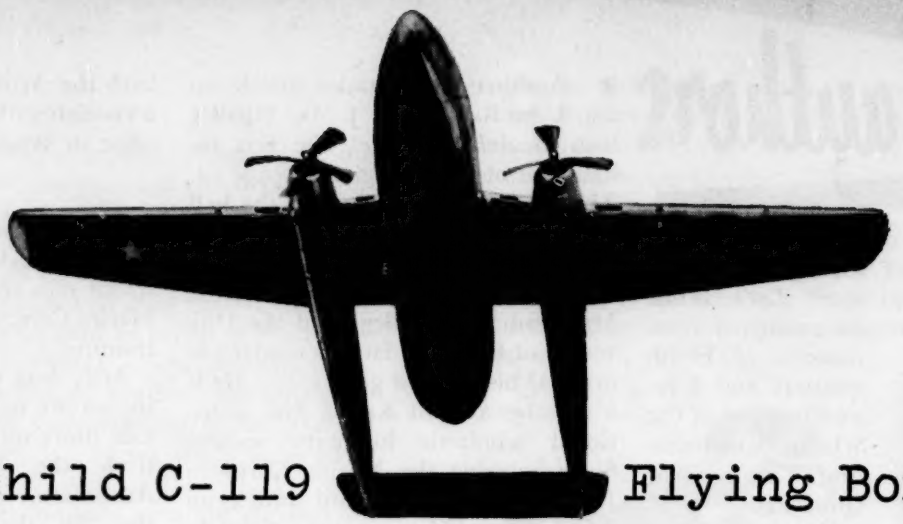
Cdr Blore has worked for publications on three continents. He was employed by the Kansas City *Journal-Post,* and also was a newspaperman in Australia and England.

Capt George W. Spreng, of the Army Corps of Engineers, gathered the background information for his article on Republic of Korea Engineers during a tour of duty with the Korea Military Advisory Group both before and during the Korean War.

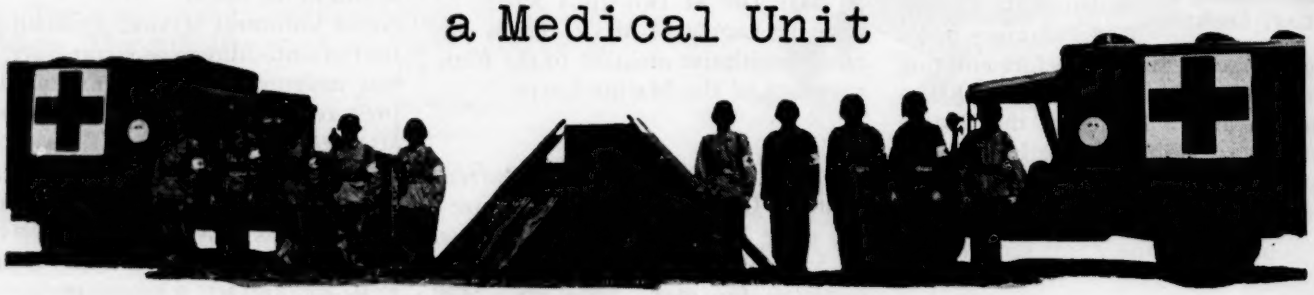
CAPT SPRENG

He enlisted in the Army as a private in 1942 and, following a wartime tour as an NCO, was given a direct commission while in Europe in 1946. He resigned and returned to the United States in 1949.

Several months later, he enlisted in the Army as a master sergeant, then served as an instructor in military subjects at New York U. for five months until ordered to KMAG in October, 1949. A year later, he was discharged and recommissioned a first lieutenant. In Korea, he was an engineer advisor to the II ROK Corps and the ROK Capital Division. USMC



A Fairchild C-119 Flying Boxcar
can easily transport
a Medical Unit

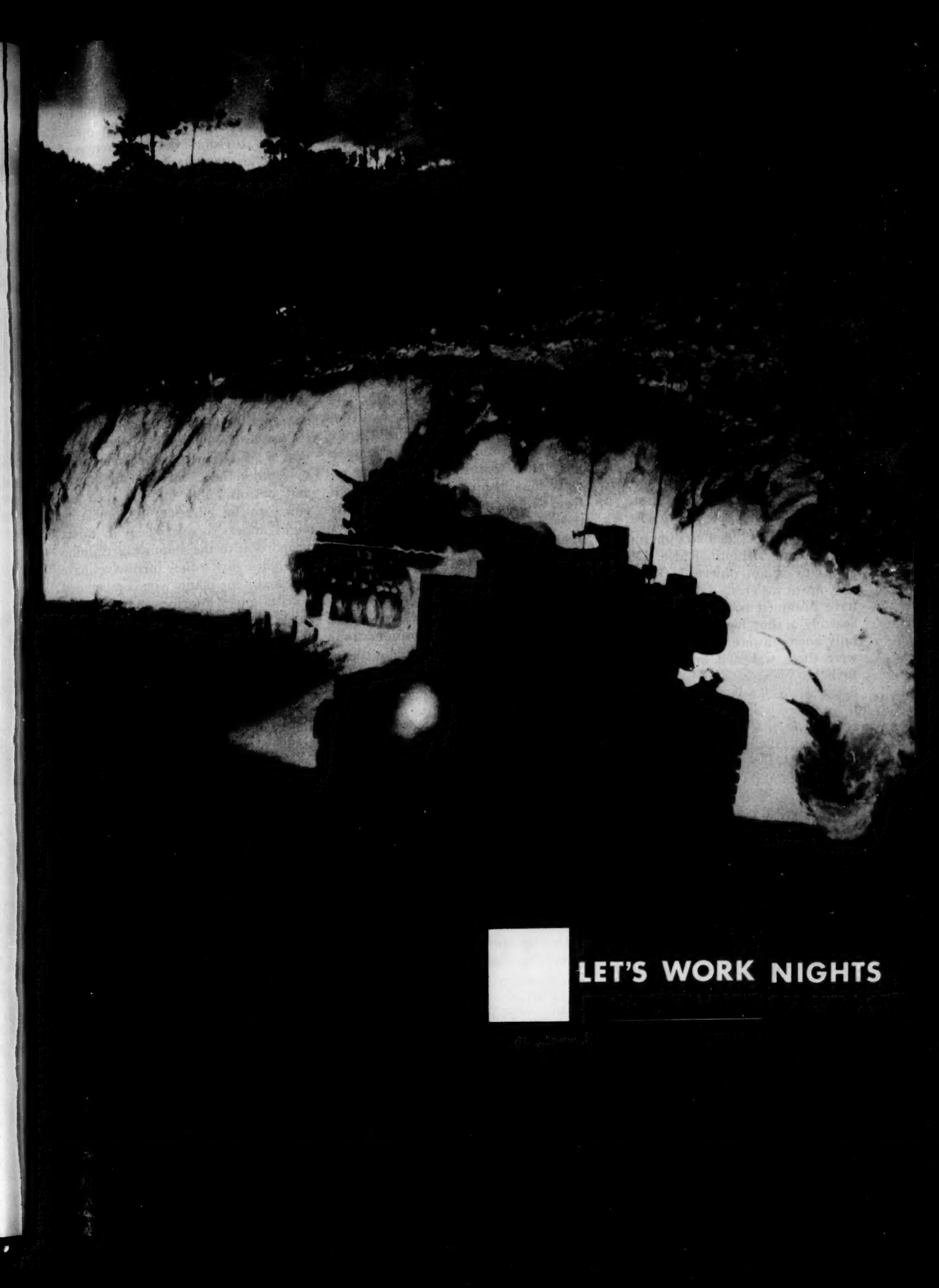


consisting of two ambulances,
ten men, twenty litters
and twenty medical chests...

to an airhead and unload it
in a matter of minutes
and it is being done every day!

ENGINE AND AIRPLANE CORPORATION
FAIRCHILD *Aircraft Division*
HAGERSTOWN MARYLAND

Other Divisions: Guided Missiles Division, Wyandanch, Long Island, N.Y. • **Engine Division,** Farmingdale, N.Y.


LET'S WORK NIGHTS

TIME: 16 MAY 1945

Place: Ishimi Ridge, Okinawa

Cast: 2d Bn, 307th Infantry, 77th Division

Action: All day long the 2d Battalion struggles to gain momentum toward the top of the ridge. Late in the afternoon, because of intense enemy fire, the 2d Battalion, less numerous casualties, is just about where it started.

Time: 0300 17 May 1945

Place: Same

Cast: Same

Action: The 2d Battalion moves out against Ishimi Ridge. Their approach is not observed. By dawn they are at the crest of the ridge. They have sustained not a single casualty. Scarcely a shot has been fired. The only enemy aware of their approach were those wakened briefly in their foxholes by American bayonets. At dawn when the enemy emerge from their caves behind the ridge to stretch and smoke, they are mowed down.

Lesson: Obvious

Questions: Many

(1) Why didn't they do it sooner?

(2) Why didn't we all do it more often?

(3) Why don't we plan to do it more often in the future?

Answers:

(1) The 2d Battalion didn't do it sooner because it probably regarded a night attack as a freak tactic, a desperate maneuver to be used only as a last resort.

(2) We all didn't do it more often because we thought just the same as the 2d Battalion did.

(3) That's the one that stumps me. I don't know. But certainly in view of recent history we *should.*

There are arguments for and against, but for me the pros have it all over the cons.

Since the end of World War II, the conviction has been growing in my mind that the ground forces of the United States are not exploiting to the fullest the potential advantages of night operations. We are not investigating the possibility of making the night attack a standard tactic instead of a little-used special maneuver.

The most surprising thing about night attacks is this: if properly planned, they sometimes are astonishingly successful. I have been reading the reports and histories of American fighting units which operated both in Europe and in the Pacific. Never before have the forces of one nation fought in such a variety of terrain and weather. But wherever terrain and other conditions permitted, night attacks were often successfully completed with surprisingly few casualties. Most frequently these night attacks were against prepared positions from which the enemy had repeatedly repulsed daylight attacks with heavy casualties. I was struck by the fact that even after units had completed night attacks successfully, they then returned to the same old dawn to dusk grind, sending repeated unsuccessful assaults against positions from which the enemy had excellent observation and could bring murderous fire to bear. This, on the face of it, does not make sense.

Another reason for developing our ability and willingness to attack at night flows from the practices of our Communist enemies. In Korea the Chinese have used night attacks with success against some units which were not conditioned to cope with such tactics. Fortunately the Chinese did not have good fire support and were not well supported logistically at the time else they might have been even more successful in those attacks.

During World War II the Russians, especially their partisan forces, conducted many brilliant and successful night attacks and night harassing operations against the German army, which, in the middle of its all-out drive to the East, was forced to take time out to develop plans to cope with Soviet night attacks.

By Capt Paul E. Sanders

A third reason why we should increase our emphasis on night operations is to reduce the effectiveness of enemy artillery, tanks, mortars, and automatic weapons. All these weapons are most effective when engaging exposed targets observable within range. The possible use of atomic battlefield weapons cannot be overlooked. Such weapons would reap a grim harvest during observed fire. It follows that exposed troops who cannot be seen are accorded a degree of safety which is in inverse proportion to the effectiveness of the prearranged night fires.

A FOURTH REASON why we should concentrate on learning all there is to know about night operations is that we shall thereby be better able to repulse the enemy's night attacks and patrols. Our fighting men are going to be effective in combating night attacks against them in direct proportion to the amount of training in night fighting they themselves have received. One officer who commanded a battalion of Marines in the Pacific made it SOP to send groups of his men into the enemy lines at night. He reasoned, "Why should our men sit cowering in their foxholes at night while a bunch of Japanese go running around in the dark scaring them out of their wits? We can operate at night just as well as anyone else, so why not do it?" The success of these raids raised the morale of his men so much that they were as ready to fight at night as they were during the day.

One of the advantages of a night attack is that it retains the initiative. I think that this is the most important of all. Usually we attack at night only on a limited scale and then revert to the usual 0600-1700 attacks, leaving the night to patrols and raiding parties. The question in my mind is: Can we find a way to keep the attack going in a sustained drive night and day? And if so, for how long? It seems to me that attacking on a narrow front employing a greater than normal concentration of troops might be the answer. A regiment might attack in a column of battalions and maintain its momentum day and night. Helicopters might be used to help the echelons which were resting

A much neglected road to victory, the well planned night attack can bring success. But first we must train our troops in the dark—so we can hit the enemy at night.

to catch up with the attack.

Maintaining the momentum of an attack day and night without stopping would help us to avoid a difficulty which the Germans encountered in World War II. The Russians are past masters in the organization and improvement of terrain for defense. In World War II they dug in with such rapidity that the German general staff issued orders that it was imperative to destroy any enemy salient or bridgehead immediately, even if it took an all-out attack. A few of the enemy left for the night meant hundreds of the enemy the next morning, well entrenched, complete with their ever-present antitank guns.

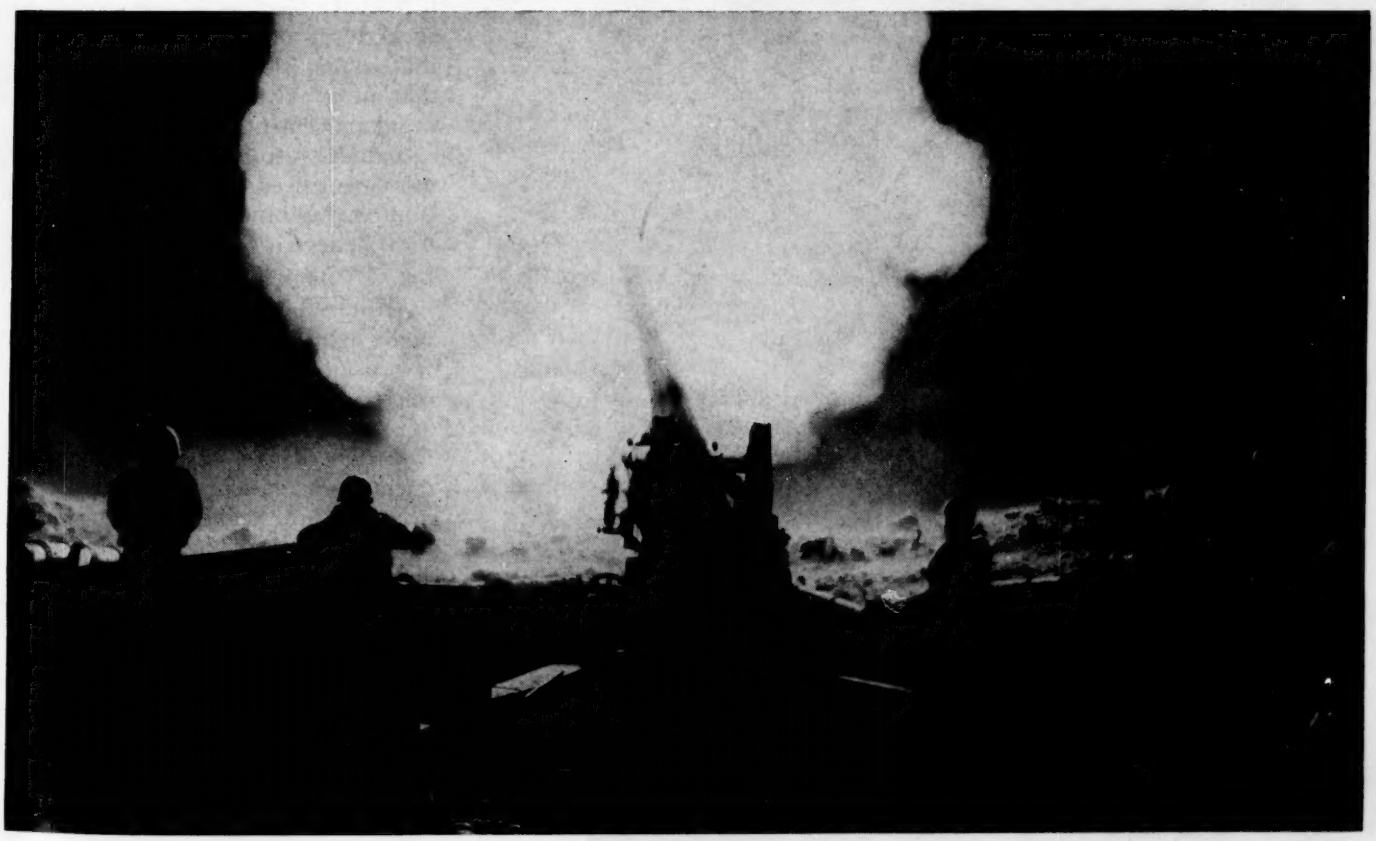
The psychological aspects of combat are accentuated at night; therefore they become more important. This brings us to another reason why we should cultivate our competence at night fighting. I believe that the advantage in night operations is always with the attacker so long as the momentum of the attack is sustained. And in combat, no advantage should be neglected. Intensive training can be a factor in helping to gain and maintain this important advantage.

The disadvantages of night fighting are not so formidable that they cannot be overcome by proper training.

Like most officers, I have had occasion to participate in a few night maneuvers, and to my knowledge the biggest single objection to night attacks raised by unit leaders is "You lose control easily." This is true, but the reason control is lost so easily at night is that most infantry units hold night training operations only once every two or three months, or even less for that matter. And then only on a limited two or three day scale. It would be a miracle if units conducting night maneuvers did not lose a large measure of control under these conditions. The answer to this objection is intensive training and the development of a workable system of lateral communication. The system of lateral communication necessary for maintenance of control is also valuable in sustaining the morale of a night fighting unit because it permits interior units to be kept aware of the situation on their flanks.

The psychological problem is frequently posed as an objection to attacking at night. Night battles seem to be much more confusing than daylight attacks because troops can see only a few of their own forces at any one time. Also, battlefield sounds which would be considered normal in daylight take on an air of abnormality in the darkness. Small units are easily led to believe that there is no one on their flanks, that the attackers are receiving heavy casualties, and that the attack is bogging down. Several units getting this impression at the same time could really bog down an attack and cause it to fail where it might have succeeded had they kept going. Units in the defense at night

Pre-planned fires can be used to neutralize the flanks



might react similarly, or might even break and run. Again the answer to this objection is intensive training. To avoid such instability, the men in our ground units must be thoroughly indoctrinated so that they know that the confusion around them is quite normal and not nearly as great as it might seem to be. They must be taught that success depends on small unit aggressiveness.

The objection is frequently raised that troops attacking at night cannot avail themselves of the full power of supporting arms and weapons. The terrific fire support our men receive is their greatest aid during daylight. Why cannot techniques be perfected —or exploited through training, if they already exist—to make all necessary fire support available at night?

Sometimes a very strange objection to night operations is raised: Too much time is required to train a unit to operate at night. The answer to that one is to revise the estimate of what the training objectives of the unit are so that night proficiency is given a top position. We must not be affected by old prejudices. And how much training time is the life of one Marine worth?

A final objection is that movement at night is too slow. One reply to that is that slow movement is better than none at all, or better than more rapid movement at a greater cost in casualties. Another reply is that night movement need not be as slow as our limited, fumbling experience has led us to believe it must be. Again, training can turn the trick.

Military history is full of lessons on night fighting. I would like to cite a few examples of night attacks conducted by our forces on Okinawa. I am using these examples because they illustrate that continuously excellent enemy observation, which results in accurate fire, makes daylight movements costly, and because they show the relative ease with which average troops conducted successful night attacks against formidable positions. I use them also to show where improper preparations and timing can ruin an attack.

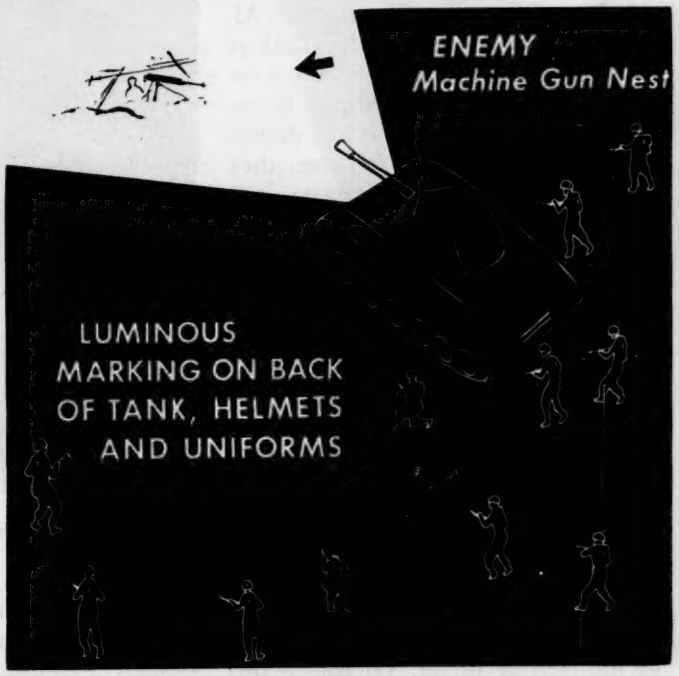
Lesson I: Proper planning assures success. On 10 June, 1945, the 1st Battalion, 17th Infantry, was ordered

to seize a portion of the Uaeju-Dake Escarpment by 13 June. The battalion commander had no desire to undertake a daylight attack as other units had been cut to pieces trying. He therefore made detailed plans for a night attack. Good prior reconnaissance, full understanding of the situation, sufficient hours of darkness, and a fortunate fog paid off as the entire battalion climbed the 170 foot cliff, killing many of the surprised foe. No casualties were received by this unit during this maneuver. The next morning they were ready at daybreak to open fire on enemy troops surprised in the open behind the ridge. Plenty of time for detailed planning had assured success.

Lesson II: Lack of planning brings failure. On a night in May of 1945, two battalions were suddenly ordered to attack and seize the ridge to their front. Daylight attacks had been stopped with heavy casualties. Time was too short to allow proper reconnaissance by small unit leaders, so poor maps and aerial photos were used for orientation. In spite of insufficient reconnaissance, the 1st battalion moved forward and occupied the ridge in its zone of action without firing a shot, although contact between companies was lost. In the 3d battalion, "L" company almost reached the top of the ridge before being fired on. "I" company was delayed and at dawn was still on the open ground below its objective, where it came under heavy fire and was unable to move up to reinforce "L" company, although it took many casualties trying. The regiment was unable to consolidate its position before dawn made movement costly. The units were unable to dig in and coordinate their fires. Increasing casualties forced a general withdrawal from the positions which had been taken so easily. The enemy was alerted and the unit spent ten more days reducing a position which had once been partially occupied without a struggle. Hasty planning, if it can be called planning, had spoiled an attack which seemed sure to succeed.

Lesson III: Night training assures night success. On a night in April of 1945, units of the 27th Division, which had had a great deal of night training, built pontoon bridges across Machinato Inlet, moved across the inlet, and occupied and consolidated positions in their portion of the Urascoe-Mura Escarpment. They moved over 1000 yards of rough and rugged terrain. So complete was their surprise that the enemy hardly fired a shot. The division had sunk a deep salient into the enemy lines. Night training had paid off with success.

Lesson IV: The *poorer the visibility, the greater the surprise.* On the night of 22 May, 1945, the entire right flank of the Shuri line was completely turned by the 7th Division, which attacked in a heavy downpour of rain over terrain which had been impassable in daylight because of enemy observation and accurate fire. The assault units advanced several thousand yards down the coast, occupied critical high ground without a fight, and held it. The rain had accentuated the advantage provided by darkness.



Lights on tanks may be used in the attack

Lesson V: The night attack often suffers fewer casualties. On the night of 11 May, infantry units moved forward and occupied the ridge to their front without a fight. But because of conflicting orders, they withdrew before dawn. They spent the daylight hours of the next five days fighting to regain the position on the ridge they once got for nothing.

Now comes the question of what the Marine Corps should do to take advantage of this much-neglected road to victory. I think that there are several requirements for making the Marine Corps a top notch night fighting unit.

The first requirement is intensive training. Units must reach the point where they feel as much at home in the darkness as in daylight. A unit could conduct training in night fighting one week out of every month. It would simply reverse its schedule so that training would begin at dark and end at dawn. I realize that this would be difficult if troops were billeted in a barracks area, but moving barracks troops into the field for one week a month is good training in itself. Large maneuvers should provide for one battalion or company attack each night during the exercise. I believe this much night training would develop a high degree of initiative in small unit leaders. Initiative further indicates morale, and morale is a very important factor for a night fighting unit.

The second requirement is to *use* supporting arms at night. Lately there have been many improvements in night fire support and we should exploit it to the utmost. Aircraft are not as vulnerable to ground fire at night. The psychological effect on the enemy is greater when aircraft come roaring out of the darkness. Possibly the cover of darkness would allow larger aircraft with bigger armament loads to be guided onto the target.

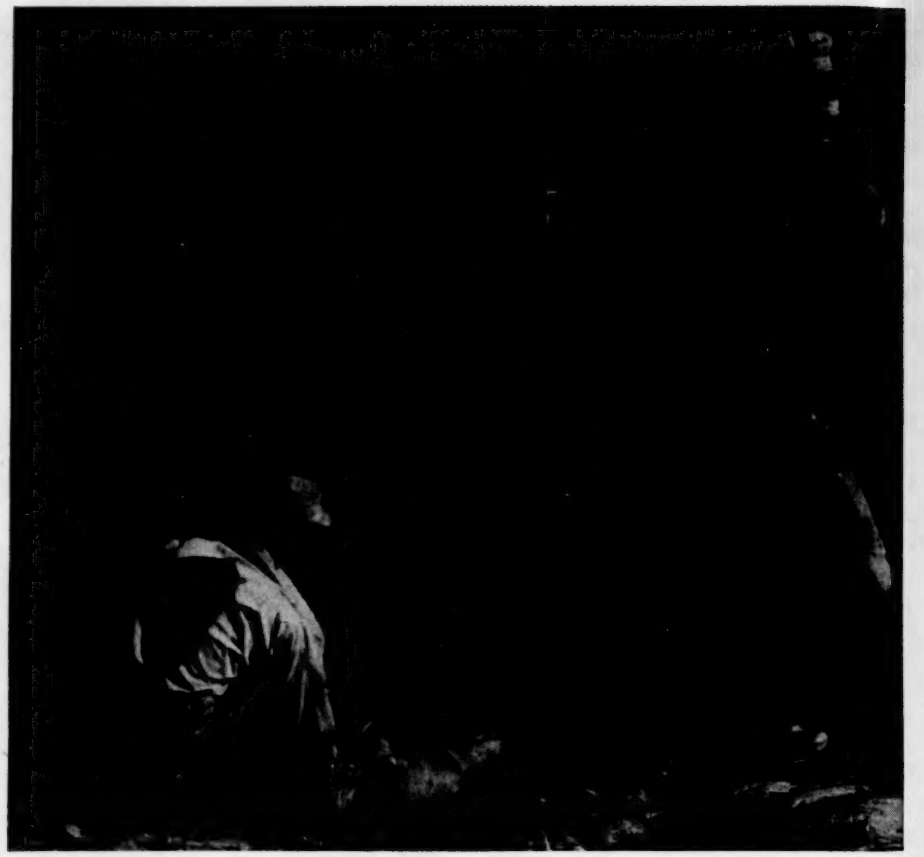
Artillery supporting a night attack could use a higher percentage of white phosphorous to produce casualties, cut down on enemy observation,

and help the attacking force to maintain direction. Pre-planned fires could be used to neutralize the flanks of the objective. As continued training of artillery and infantry in night operations develops mutual confidence, night artillery support can be closer than ever before.

CERTAINLY TANKS must have some utility in night attacks. At least they are less likely to receive accurately-aimed antitank fire at night. Although they are admittedly blind at night and cannot hit targets while on the move, this need not always be so. Our plans for night training should include tanks, even if at times, they are employed in a diversionary role only.

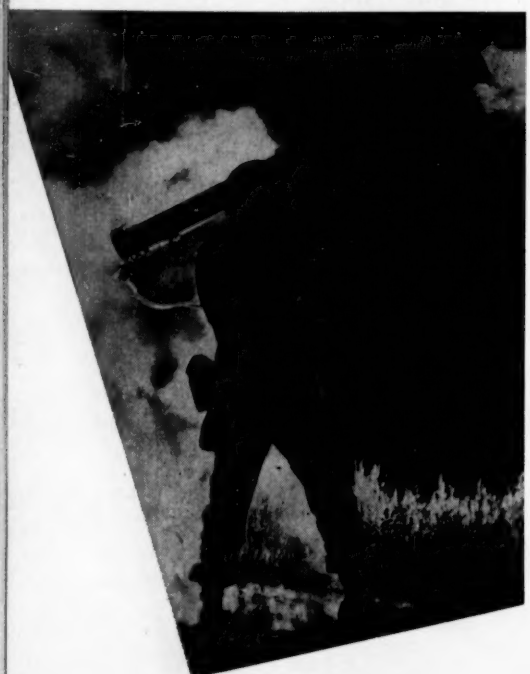
Frequently fire support will be used only after the attack has been detected.

The third requirement for preeminence in night operations is a quick and simple means of identifying friendly troops and equipment. Luminous paint or cloth could be used. Identifying marks on the arms, backs, and helmets would aid greatly in allowing friendly troops to recognize each other *immediately,* which is most important. Tanks or other vehicles could be marked on the rear of the hull or turret. Of course this means that the enemy can more quickly identify us, but not nearly so quickly as in daylight, and not with as much certainty at distances. Reorganization would be much more quickly accomplished if troops could learn to recognize each other more quickly. Easy identification would increase our shock power and permit us to maintain our momentum in the darkness.



Night training . . . to permit us to maintain our momentum

Make *all* fire support available



A fourth requirement is a proper appreciation of the capabilities of illumination in support of night operations. Two facts are apparent: we can illuminate the enemy and he can illuminate us. Another fact is not so obvious: Light can be used both to aid vision and to prevent vision. We must be able to overpower the enemy's illumination with the strength of ours. The use of light as a weapon was thoroughly discussed in the *Marine Corps Gazette* of April, 1951. Lights can be used to throw a blinding glare into the eyes of the enemy. A searchlight two thousand yards away was thrown on a group of which I was a member. We were so blinded that "enemy troops" walked to within ten yards of us before we were able to see them. Our group was perfectly visible to them during their "attack."

The question of how long searchlights could stay in action may be asked. I maintain that direct fire weapons, having the range and caliber to reach distant searchlights, could not hit them readily. It is very difficult to judge the distance to a large and powerful light. It is next to impossible to train a telescope sight on such a light. Searchlight units are mobile enough to avoid artillery concentrations by moving quickly to alternate positions.

THE LIGHTS ON TANKS may also be used. Bulletproof headlights, shooting out light on designated spots, could aid the infantry greatly in destroying enemy positions. A tank could fire at targets caught in the glare of searchlights or headlights. Of course, a tank showing lights immediately becomes a target. But tanks are accustomed to being targets, and I would venture an opinion that it is more difficult to hit a tank at night with its headlights on than it is to

hit it at the same distance in broad daylight.

A fifth requirement for success in the night attack is the application of tactics appropriate to the situation. I believe that the principles of war most important in the night attack are the principles of mass, simplicity, and surprise. A linear assault is unlikely to succeed in the dark. However, an attack on a narrow front employing a greater than normal concentration of troops is more likely to succeed. Small units should advance in column rather than abreast. In this way the force of the thrust is increased, the control problem is simplified, and the likelihood of gaining surprise is increased. Seizing the key points of terrain in the enemy position rather than clearing a specified area of the enemy becomes the central problem of the night attack. Helicopters are an ideal means of reinforcing and resupplying units which have gained the objective. In planning for the use of supporting arms and illumination, the element of surprise must not be overlooked.

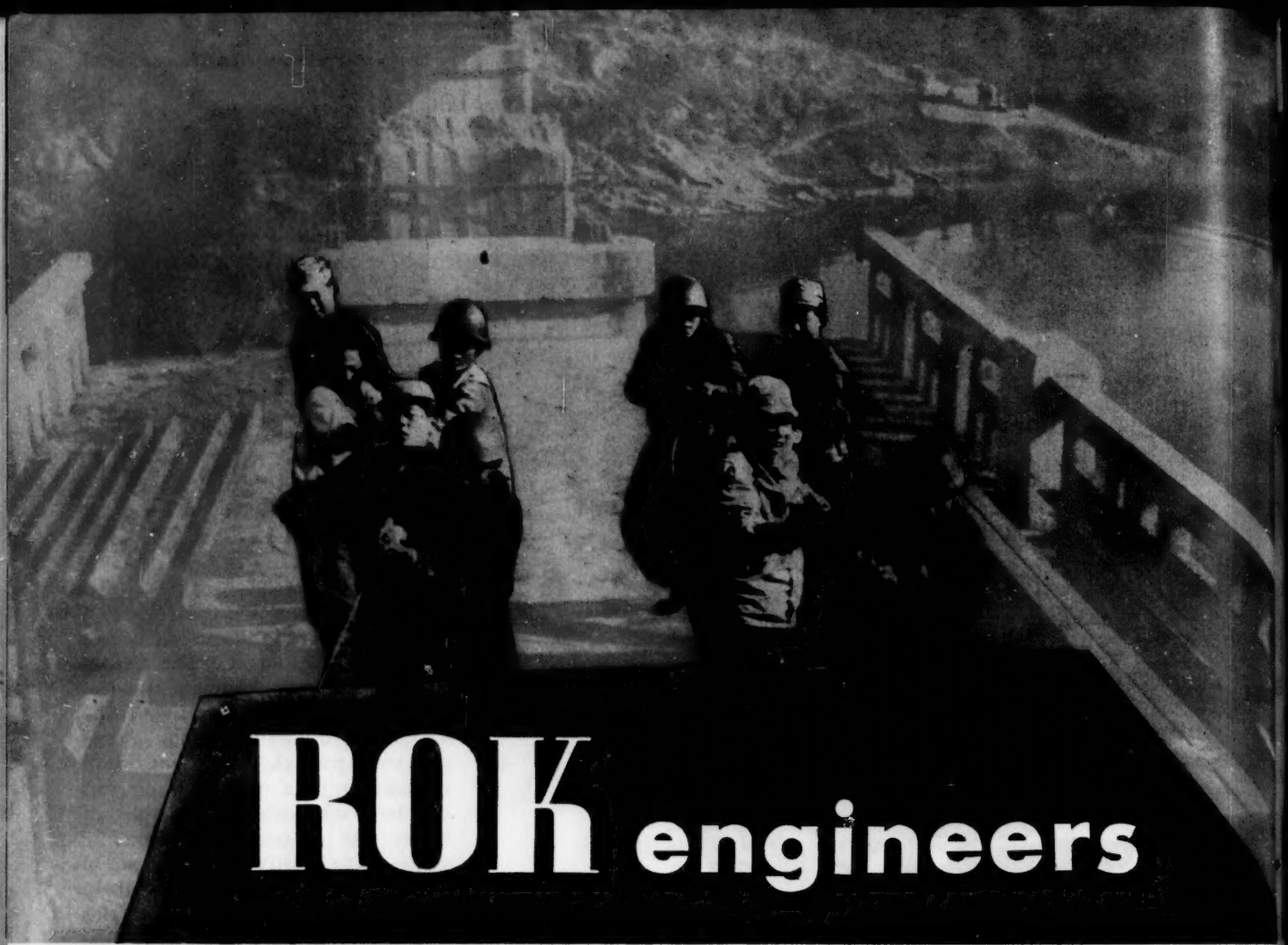
PROPER SELECTION of the objective of a night attack is the sixth requirement for success. The objective is usually the critical terrain feature in the enemy position. This also makes it the area which would be most dangerous to attack in daylight. However, when surprise is to be exploited, the critical terrain feature may not always be the target. The desirability of using tanks might also influence the choice of objectives. The Communist enemy will almost invariably counterattack if he is pushed off a position. He prepares for this counterattack with all available artillery and mortar fire. Therefore tanks, being relatively impervious to such fire, should be on hand to help repel such a counter thrust. For this reason, it may be desirable that the objective chosen for a night attack be accessible to tanks.

The Marine Corps has in this night fighting field an opportunity which has scarcely been touched by American forces. If a proficiency in night operations equal to our proficiency in daylight operations can be developed, we shall find ourselves in a position to do great things: namely, to combine the two into some system of relentless forward motion in the attack. If we can keep punching day and night, secure objectives with minimum delay, keep the enemy off balance, disrupt his defense plans, and never give him a chance to get set, night attacks will really pay off. The daylight shift would find its work easier, too.

The Marine Corps has been first in many things. Warfare is changing and we must change along with it. Here is another chance to lead the pack. Let's get to work so that we won't find ourselves in the dark after dark.

US MC

Tools for night fighting — sniperscopic M-2 rifle



ROK engineers

By Capt George W. Spreng, USA

VICTORY IN THE NEXT WAR, should an all-out conflict come, may well depend on coordination of our national efforts with those of our allies. For, in a global war, we shall be able to measure our own strength largely in the strength of our allies, some of whom are highly-trained in technological fields, others very backward in modern mechanical skills.

The Korean conflict is an excellent example of what we may face in the future. Many Americans serving in Korea do not realize, for the most part, the difficulties encountered in technically training citizens of a land dominated by China, Russia, and Japan for 800 years and whose national tongue is different from ours. Most of these critics have failed to note the advances made in spite of background and language barriers—progress which shows a promise for the future.

When the American Army ended its occupation of South Korea in 1949, the U. S. left to the newly-formed republic some equipment, much of it "greatly matured" by years of use, and the military advisory group to the Republic of Korea, known as KMAG. The organization operated under the control of the State Department initially, with its mission to assist in the creation of a ROK Army.

Organization of this army met with difficulties from the start. Of necessity, expansion was faster than would have been deemed advisable in normal times. Starting with a few battalions of Korean constabulary, a force of eight divisions and special troops was created almost overnight. According to our standards of organization, the force would require nine engineer battalions, eight combat, and one construction.

The greatest portion of the engineering in Korea had been accomplished under the supervision of Japanese engineers during the long occupation. The Koreans were inexperienced in modern skills, with much of their participation in the past having been limited to work on railroad beds. Trained military leaders were also hard to find. In all of Korea, only a few persons had held rank, in either Japanese or Chinese armies, above that of captain.

Engineer battalions did have an advantage over other ROK units in that

With picks and shovels, strong backs and willing hands, ROK Engineers manage to keep pace with mechanized divisions

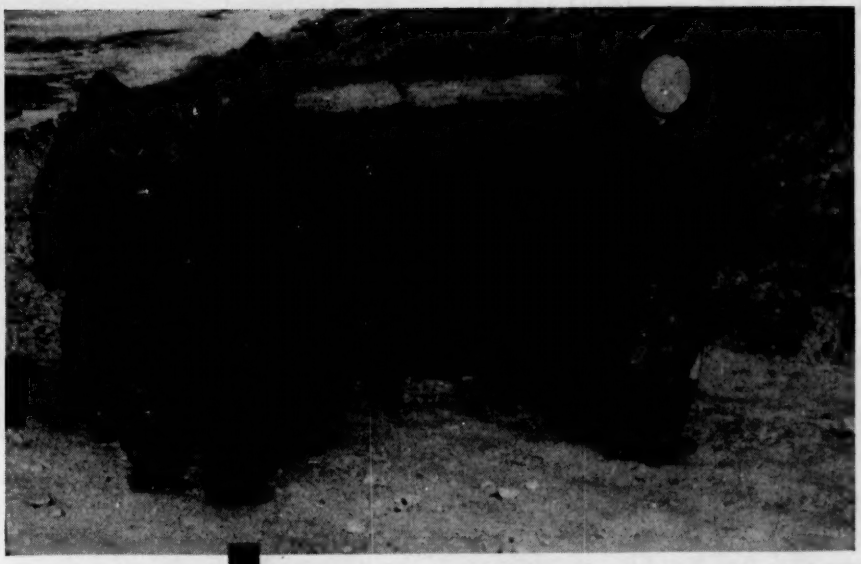
they attracted the better-educated men of the Korean Army. These men were keenly interested in everything mechanical and absorbed knowledge rapidly. In addition, they brought to their instructors no misconceived or incorrect mechanical ideas that had to be erased. If no language barrier had existed, we could have done wonderful things with these men.

In addition to the difficulties already mentioned, KMAG's engineering section faced a shortage of personnel. Only twelve officers were available to build up nine widely-scattered engineer battalions, establish an engineering school, supervise engineer supply, translate and publish reports, and attend to our own internal organizational problems. Since not all of the men required in the table of organization were always available, a shortage of personnel existed which resulted in my being assigned to a captain's billet even though I was but a master sergeant.

The KMAG command wisely realized that it would be foolish to try to mold a ROK engineer battalion exactly along the lines of an American unit. For one thing, we lacked the equipment. The shortage was so great that we could not put a single piece of heavy equipment in the engineer companies prior to the outbreak of hostilities. All we had available were some pioneer and carpenter sets. But though the ROKs did not have much equipment they did very well with what they could muster. The Korean soldier understood the shovel and was not reluctant to use it.

The limited skills and lack of equipment made hand labor necessary to get jobs done. Where the American Army would have used a bulldozer, the ROKs assigned a platoon of men. Where we would have used heavy equipment to build an airstrip, for example, the Koreans used 10,000 men, putting them to work with their simple tools, but getting the job done in spite of shortages.

When the ROKs activated their engineer battalions, KMAG drew up a simplified 13-week engineer training program, but carrying it out was almost impossible. Training manuals had to be translated in order to provide materials for instruction. In most

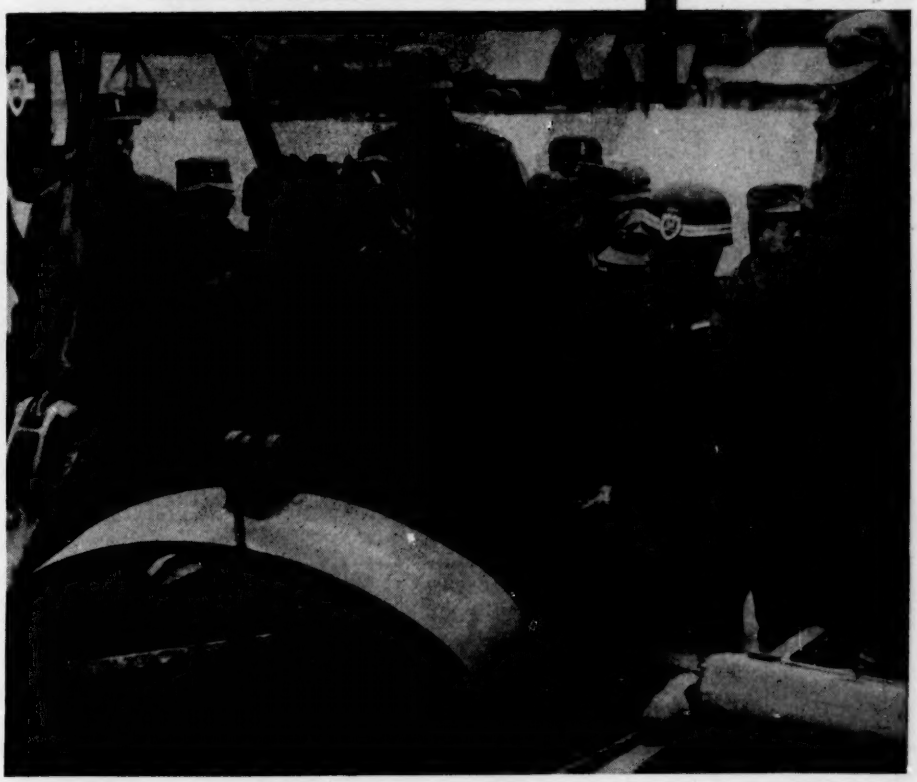


Old methods were used . . .

cases, ROK officers themselves were not yet qualified to teach an engineering course, so they were taken to Kimpo where a school was established under KMAG supervision. Because of the shortage in advisors, we could not assign one to each battalion more than four days each month. And even when the advisor was present, the language barrier made his instruction difficult. There were more problems.

In addition, guerrilla activity in Korea constantly interfered with our training program. Communist-sponsored groups harassed the country and kept the military, including the engineers, moving to the scene of some new outbreak. As a result, not one battalion had completed the thirteen-week training program when war broke out. But progress had been made since battalions had been or-

While others learned the new . . .



ganized, their officers selected and educated, and the troops given some training.

The early showing of the ROK engineer troops in combat was not spectacular, but it was encouraging considering the difficulties which had been encountered in their training. The 38th parallel frontier had not been adequately prepared for defense. Then too, early in the war, the engineers were reluctant to blow up bridges even when the structures had been prepared for demolition and personnel had been left behind to do the job. The Koreans were proud of their bridges and they reasoned they might need to counterattack over these routes. In one instance, the engineers did not blow a vital bridge prior to the start of war because they believed it would hasten hostilities. The bridge turned out to be on the main enemy route of advance.

One notable exception to this reluctance was the premature destruction of the Han River bridge at Seoul. This came so early that much equipment had to be abandoned north of the river, but the demolition was ordered by a high-command officer and not by the engineers.

Battalions had been organized, and the troops given some training

Another serious weakness of the engineers at the start of the war was their inability to handle the American M-6 antitank mine. The M-6 was not available in Korea until the fighting had begun, and when it was issued to the troops, they needed some time to learn to use it efficiently. In their patriotism, some volunteer ROK engineers strapped armed mines to their bodies and ran against tanks. This "technique" was later modified so that the soldier ran in front of an oncoming tank and dropped a mine in its path. The latter was highly successful when the tanks were buttoned up and not accompanied by infantry.

After a time, the ROKs became very proficient in the use of both antitank and anti-personnel mines. They learned to cover their fields with fire and developed a delaying minefield for long and short withdrawals which, with demolitions, limited the enemy's thrust-in-time capabilities. Few Amer-

Blowing up bridges went against the grain

ican units could equal the ROKs in this type of operation. And contrary to reports, the Koreans were careful in recording their minefields. It usually was a communication barrier that hampered attempts to get the mine reports through to proper headquarters.

As the campaign progressed, the ROKs progressed also. For one thing, there is no training like actual combat. In addition, after the United Nations actively intervened in Korea, additional KMAG advisors were allotted until each engineering battalion had one. The advisors also became more efficient, for they came into more intimate contact with the Korean troops and, with a better understanding of the ROKs, could teach more effectively. Classes in mines, flamethrowing and similar subjects were held whenever the tactical situation permitted. The increased instruction made a great impression on the Koreans, for, as has been previously mentioned, they have a strong desire for knowledge.

Since they did not have the trucks and equipment which American divisions possessed, the ROKs were not nearly as road-bound as U. S. units, and they did not cut up the roads as badly. Maintenance therefore was much less of a problem in the ROK sectors of the front than in the American. Yet the Koreans used a solution for road maintenance that was unique to us. By tradition every Korean is required to work on a certain section of the road near his home for two days in every year. So when the roads in an area became impassable, the ROK commander merely went to the local civil government chief and ordered their repair. Several enlisted men were left in each village to supervise the hundreds of civilians who turned out to do the actual work. Results were astonishingly fast, for work was carried on concurrently in sectors sometimes 100 miles long.

Critical military difficulties arose in building bridges because of the location of Korean rivers. There were no prefabricated bridging materials for the ROKs, and local procurement of lumber was limited since Korea has little timber. Stone is plentiful, but it is not suited to rapid military bridging. Reconnaissance of everything useful in an area was made continuously to make up for the shortage of building material. When an operation was pending, a careful search never failed to find something which would do the job. The bridges built from non-standard materials had a definitely non-standard appearance, and looking at the completed product, one was filled with awe that the structure would stand no less bear weight. Yet the ROKs were uncanny at building strength into their bridges. I have no knowledge of a method for calculating how much weight a ROK bridge will bear, but I have never heard of one falling.

I learned many valuable lessons from the Koreans. One was the great faith which ROK troops placed in their noncommissioned officers. Even though we have one of the most intelligent NCO corps in the world, we fail to utilize it as do the ROKS. They put us to shame in their dependence upon their noncoms.

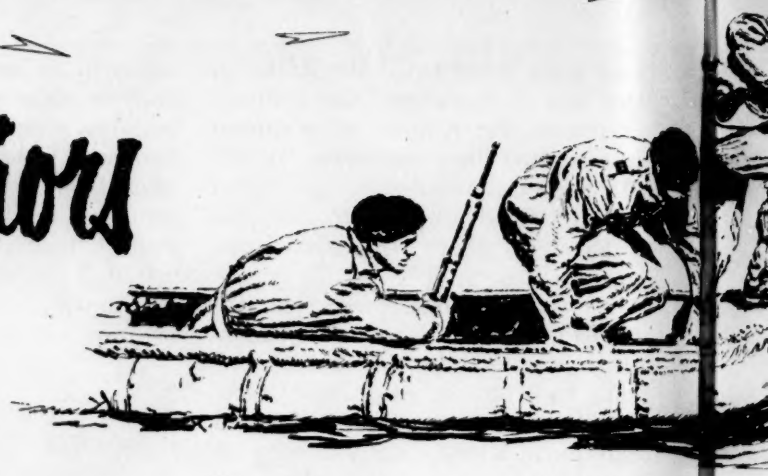
The value of a pair of willing hands also was evident to those of us who worked with the Koreans. Some persons feel that American combat engineers tie themselves too closely to their equipment. Korean engineers, without equipment but with picks and shovels and great assistance from civilians, kept pace with their own divisions.

One of the principal lessons which the ROKs taught me is the great potential of any group when given training and a minimum of equipment. On a national scale, the Koreans were untrained in engineering skills when KMAG began its work. Yet, in spite of discouraging obstacles, we were able to teach the ROKs enough for them to do their job in combat.

With this in mind, we must, in the future, cooperate with our allies intelligently so that they can hold their own in a working partnership. Not all of our allies will be technologically trained like the British, French, and other Western nations. We will have to teach many unskilled and untrained soldiers how to work and fight. And we can learn the techniques of training, cooperation and inter-dependence today. That could be one of the prime military lessons of Korea. USMC

Primitive methods, but strong bridges

school for Warriors



The Royal Marine Commando School trains a tight corps of specialized fighting men, tough Commandos who have proved their mettle on Korea's icy peaks and in steaming Malaya

THE BLACKNESS OF THE NIGHT IS broken only by that white line where the waves foam against the rampart of rocks guarding the sheer cliff. Small boats race in towards the invisible English shore.

Within a few yards of that granite shelf where the seas are breaking, the boats check to the pull of kedge anchors. Across the last gap, a few feet of turbulent water, dark figures spring from each little craft and turn to hold the bow steady with a short length of rope while others follow sure-footedly.

As the boats back away again from that menacing lip of rock, then turn and move out to sea, the half-dozen little parties of men who have sprung ashore disappear into the gloom at the foot of the cliff. The noise of the waves smothers the sound of the landing.

Gathered in the shadows the men pause as a lone figure from among their number begins to climb the towering wall above them. On his back is a light basket holding a coil of rope, on his hip a holster with pistol ready for action.

Steadily, judging his holds in the dark, he ascends towards the heights where an enemy may be lying in wait. He reaches the top, looks 'round quickly. All is quiet. Swiftly he lowers the rope to his waiting comrades.

One after another they swarm up, and soon are assembled on the cliff-top. They move off in cat-like silence to be swallowed up by the night as they head for their objectives—an airfield or a radar station.

Heaven help any luckless sentry in the path of these silent exponents of unarmed combat and Judo wrestling. Not that there will be any bloodshed this night. For this is just another exercise in the curriculum of a unique school for warriors, the Royal Marine Commando School at Bickleigh, near Plymouth, England.

It was a ceremony within the great, grey buildings of Britain's Admiralty in the heart of London, one day this summer, which reminded me of this "School for North Atlantic Treaty Organization warriors"—for its training is not entirely confined to Britain's Royal Marines but is available to picked officers and men of other nations in the Grand Alliance of the Atlantic.

At this ceremony Col Daniel W. Torrey, of the United States Marine Corps, set the seal on comradeship in arms of Britain's Royal Marines and the United States Marine Corps when he presented to the Commandant General Royal Marines, LtGen J. C. Westall, a painting by American Marine Lt H. A. Chenoweth. This depicted LtCol D. B. Drysdale, commanding Forty-one Independent Commando of Royal Marines in Korea, on the historic occasion when they had fought their way through to join the beleaguered American Marines at the Chosin Reservoir.

If ever blood-brotherhood were well founded, it should be that between Britain's Royal Marines and the United States Marine Corps. For blood was certainly mingled in that supreme fighting withdrawal from the North Korean reservoir during the terrible winter of 1950, from which the Marines of both countries emerged with the highest regard for each other's warrior qualities.

I had discussed this action with Col Drysdale before he left London last January to join the staff of the United States Marine Corps Schools at Quantico. That is why it was so strongly in my mind when I traveled down recently from London to see the Commando School at Bickleigh in the English county of Devon, a region from which have come so many of Britain's finest fighting seamen since the days of Drake.

As a "mere naval officer," I had discovered in war years, and even before, what made "Britain's Sea-Soldiers" (to give them their classic definition) so smart, efficient, and enterprising. Now to discover what made a Royal Marine Commando "tick."

It seemed a shrewd decision to make the Corps the peacetime guardians of the Commando tradition largely established during World War II by

By LtCdr Trevor Blore, R.N.V.R.

British Information Service photos

Men who wear the green berets — Commandos

some of the toughest and ablest fighting men of the British Army. After all, the Royal Marines were "Commandos" long before such Army units were evolved and christened at the behest of Prime Minister Winston Churchill in the darkest days of the last war.

Many of the landing operations and other enterprises in their long history were "Commando jobs." It remained to be seen how they were maintaining and developing the new Commando tradition and training.

At first sight the Commando School at Bickleigh was not impressive—a collection of large huts aligned over a windswept hillside. But I quickly found that the spirit of the school was as keen as the sharp wind which blew in from the sea that early morning.

In the officers' mess, just one of the many huts, I heard a few details of the establishment. Every man entering the Royal Marines these days has to do his Commando course, a hardening process which puts a fine edge on the initiative, self-reliance, and speed of thought at which "The Royals" have always aimed in training their men.

"Royals" have a remarkable record of versatility

In any week of the year I would find some half dozen officers and around 250 men training here. Not an impressive number, but a good turnover for an elite corps which totals only some 10,000 men and has duties to fulfill at sea and ashore in many parts of the world, particularly in the front lines against Communism in Korea and Malaya.

As to the rest, I should see for myself. It was then I discovered that this unique school is not confined to Britain's Commandos.

I WAS TO GO THAT MORNING with a party of forty Belgians who were nearing the end of three weeks of intensive training along the rugged coasts of Devon and Cornwall. They were to give me some idea of a "rocky beach landing" and cliff assault which constitutes some of the chief training of a Commando.

It was not without some carefully disguised concern for my grey hairs that I shifted into the Commando rig of heavy, studded "scramble boots," denim trousers, and camouflage-mottled "smock," a voluminous overall with capacious pockets which buttons between the legs.

As we rolled down to the waterfront in two trucks, the husky young Belgians sang in French and Flemish. We embarked in two long, rangy, and snub-nosed launches, and sped across a bay towards the "nursery slopes" of cliff-scaling.

I could see in the distance the tiny figures of men who seemed to run up ropes hanging down the cliff face like the monkey-on-the-stick of childhood days. But we were heading for an even more ominous section of the cliffs guarded by a shelf of ugly rocks around which the seas constantly crisped white.

In my sea-going days I have handled small boats under tricky conditions, but I could hardly believe we were going to land on those rocks to attack the towering cliff behind them. But as we stopped within a cable's length of the rocks, two mere cockleshells came pockeying around us. These sturdy, open, motor-driven dories did not look their eighteen feet of length in that setting.

With the sea showing only a slight lop, this was to be merely a child's play demonstration for my benefit.

I watched with the admiration of a seaman the khaki-clad Marines who handled these small craft—a one-man crew to each to cope simultaneously with the engine, the tiller, and the small kedge anchor which must be streamed astern at the precisely right moment to check the dory as it nears the rocks.

HELPED BY A ROCK-CLIMBING instructor I jumped down into a dory to join a party of five Belgian Commandos who would show me how this tricky job was done. Another party of Belgians swarmed expertly into the other dory, gripping their carbines and tommy-guns. Then we headed for a comparatively flat large rock around which the sea foamed constantly.

As the dory seemed doomed to crash into the rocks, the helmsman calmly cut the engine without letting go of the tiller, and then slid the small kedge over the side and paid out the line to just the right length.

From the bows of the dory a young Belgian leaped across a few feet of foaming water to land on the rock and brace himself against the boat's painter to steady the bows while his comrades swarmed ashore. A few yards away the other dory-loads were also landing and leaping across the rocks like mountain goats towards the base of the cliff.

Then came a demonstration of rock-scaling while the instructor explained to me the technique of going up a wall like a fly.

On the way back to the school these husky Belgian youngsters explained that this was a restful morning after their experiences of the past three weeks. They had spent a week camping out in the neighboring county of Cornwall, making rocky-beach landings in rougher water than this, and scaling much more difficult cliffs in daylight and darkness. They had climbed "Commando Ridge," a mountain which has become a traditional test, and had outwitted the defenders in an exciting night raid on a naval airfield.

Another test was an operation of thirty-six hours across the bare, windswept slopes of Dartmoor, trying the ability of these young fighters to cross strange country by map-reading, keeping under cover and infiltrating "enemy" territory. They were finishing their visit that afternoon—with a football match against the Royal Marines.

Back at the school I was handed over to the care of a new guide, a sergeant-instructor who is one of several members of the staff to have won the distinction of the Black Belt for Judo wrestling. He conducted me down to a valley below the hutted encampment to inspect the "Scramble Course" which is the basic stamina test for all men who come to the Commando school.

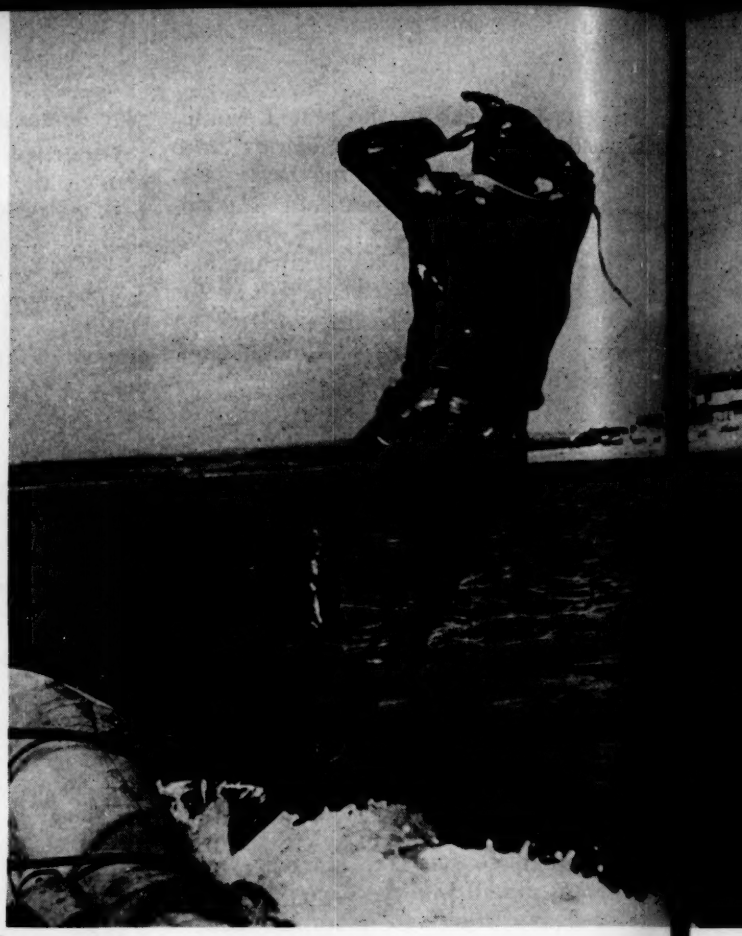
On either side of a swift-running stream was laid out a close-packed and ingenious obstacle course, with high and low bars, hurdles, ladders, and ropes which recruits in full marching order must cover in a matter of minutes. And this was just the start of a toughening course. The river was spanned by a single rope about twenty feet up, but for my sake we crossed by balancing along on an all-too-narrow tree trunk.

ON THE OTHER SIDE I saw why this was also nicknamed the "Tarzan Course." Ropes and lines were rigged for men to swing from treetop to treetop, and against the face of a river escarpment were ropes for first lessons in scaling.

My guide showed me how to climb in upright position close to the cliff-face, letting the feet do the hardest work in short steps and keeping the strain off the bent arms. Then he showed me the "Panther Crawl," a mathematically-calculated way of using that rope across the river as a bridge.

It looked easy. He lay along the line twenty feet above the water, one leg bent with foot hooking the rope at the instep, the other leg dangling as counterpoise to the shoulders, and hand passing over hand to draw the body along the rope quite smoothly. Purposely he overbalanced and dangled by one hand for a moment before recovering gymnastically his position along the rope.

"Of course," he said, even while he demonstrated, "it's a bit harder in full kit with a pack on your back." I was content to try it along a rope which ran a few feet above dry land, and



Lone wolf commando — "Frogmen"

The specialist in unarmed combat

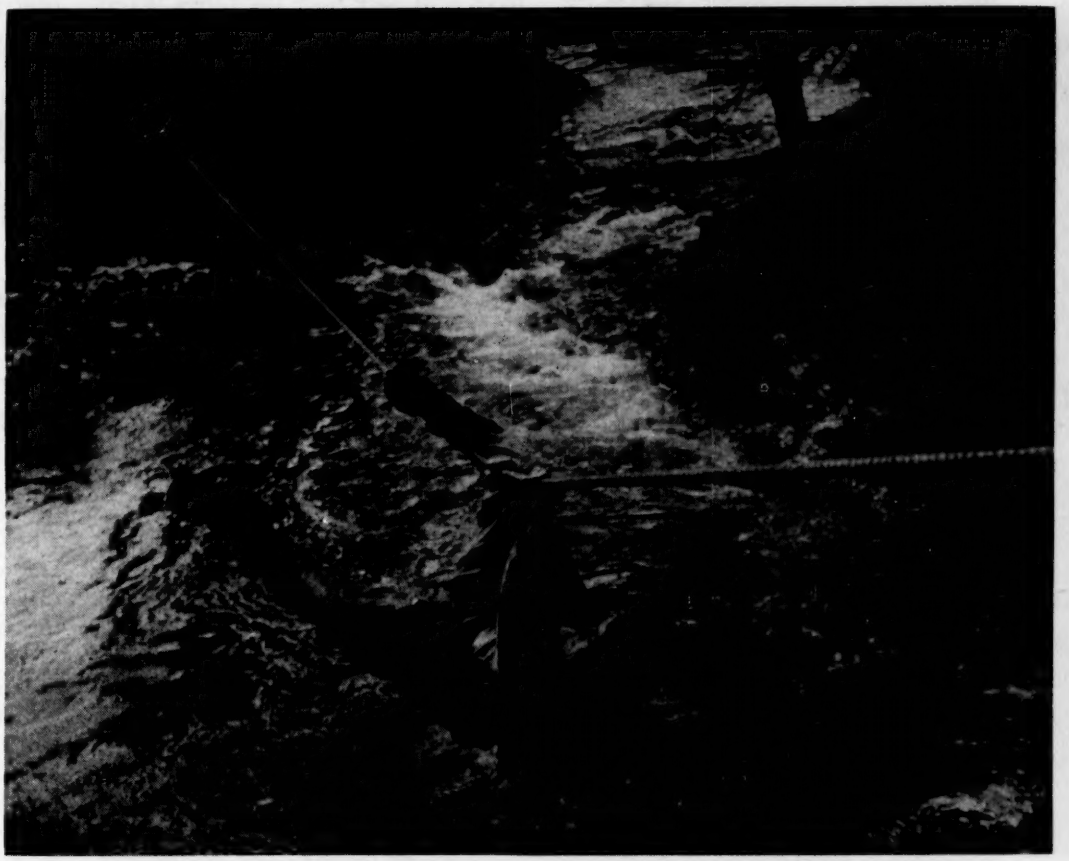
was surprised to find it almost simple.

For me it had been an exciting day, but it was only a glimpse of the elementary training which made the Royal Marines who distinguished themselves in the Reservoir battle and in the less spectacular but equally important war against Communism in Malaya.

To get this small picture into perspective it was necessary to look at the training as a whole. Two types of course are run at Bickleigh—Commando I Training, the basic course, and Commando II Training for specializing.

"An important aim of the basic course is to inculcate the Commando spirit," a Royal Marine officer explained. "A very important part of this training concerns 'morale', to bring out in men determination, en-

The "Panther crawl"



thusiasm, and cheerfulness, and especially under bad conditions, individual initiative and self-reliance, and comradeship."

During the whole course of six weeks, emphasis is laid on teamwork. Among the nineteen items on the syllabus are battle physical training and ropes, scramble course, speed and cross-country marching, bivouacking and living out, first aid, map reading, organization, night fighting and patrolling, internal security, and amphibious training.

Not the least item on the syllabus is "Commando History." Britain's Royal Marines have long taught to new recruits the proud history of their Corps since its creation in 1664—not as laurels to rest upon, or for the sake of glorification, but as a standard to aim at and surpass as Commandos.

That they have something to teach, their crest of the Globe and Laurel shows. For it was King William IV, the Sailor-King of England, who early last century gave them the globe insignia to cover their world-wide battle honors.

They have added to their Corps' history the story of the intrepid warriors of World War II, the men who wore the green berets, the Commandos who made their daring raids into Hitler's strongholds. Korea and Malaya are now part of this history of Commando triumphs. That is what the recruit hears early in his training at Bickleigh.

At the end of the basic course, men may volunteer or be selected to attend a specialist course in Commando warfare. These come under four main headings: cliff leaders, platoon weapons, assault engineers, and heavy weapons.

The cliff leader evokes my particular admiration; he is a human fly, out on his own, swarming up the face of a cliff to face unknown perils. These specialists are taught the various methods by which to overcome the difficulties of cliff assault when raiding an enemy coastline, and are responsible for leading climbs and establishing ropes for the follow-up troops. They also learn mountaineering technique and small boat landings.

Men qualified in the second category teach all aspects of platoon weapons and must also instruct in commando training and tactical training.

In the field of heavy weapons the specialists concentrate on the three-inch mortar and heavy machine guns and the "first class rate" is able to

command the fire control of both weapons.

The Commando assault engineer is the skilled technician who studies many aspects of engineering, including bridge-building, beach-clearing, and demolition. He also studies water supply and drainage among the various aspects required in establishing a camp. Bickleigh trains the "third class rate" in this sphere, but the "second and first class rates" are attached to the School of Military Engineering to further their knowledge.

In the lower grade (third class) men may be selected to do either a sniper or night specialist course. It amazes me that any man who has passed successfully through the basic course should be described as "third class," even in a technical sense.

The sniper does a special course at the small arms school of Britain's Royal Marines and is then posted to a Commando unit. Here he may be used to raise the standard of the rest of his troop by showing off the finer arts of rifle shooting.

THE "NIGHT SPECIALIST" — more typically named "night guerrilla" — is the kind of fighter who springs to the public mind when the word Commando is used. His is the leadership in patrolling and Commando night operations, tasks demanding higher individual skill than normally called for in most Commando troops.

Here is the specialist in such lines as unarmed combat or Judo, that deadly form of wrestling by which an enemy sentry may be swiftly silenced or killed without knowing what happened to him. Here is the manstalker of high personal initiative.

Yet, it must be remembered, this Commando training is only a part—the middle part—of the making of that versatile and amphibious warrior, the Royal Marine. It is rather like the tempering process for fine steel.

In their long history "the Royals" have a remarkable record of versatility—from driving trains (and perhaps even camels) to valeting admirals.

The first part of that old nursery jingle . . . "Tinker, tailor, soldier, sailor . . ." has often reminded me of a Marine. He can turn his hand to anything. And the Royal Marines have long boasted that in a cruiser, for instance, the after guns in X turret, traditionally manned by them, are served faster than the forward A and B turrets manned by seamen.

In these days of increasingly mechanized warfare the Royal Marines have kept pace with the times. Every year the Marine becomes a more skilled fighting man.

As of old, the new recruit gets his first experience of discipline and training on the barrack square at Deal, on the southeast coast of England.

NOW HE IS BEGINNING TO SHAPE like a skilled and disciplined fighting man, so he passes to the Commando School at Bickleigh for the tempering process. Six weeks of this and an interesting variety of roads lie before him.

If he shows no great aptitude for specialization in one of the branches of Commando warfare he may go straight to Number Three Commando Brigade, a force of about 2,000 which recently completed two years of effective campaigning against the elusive Communist terrorists in the dense jungles of the Malayan peninsula—or else to a ship for gunnery or other duties long performed at sea by "Britain's Sea-Soldiers."

Alternatively, if he shows other aptitudes, he may return to Portsmouth for either of two specialized branches, landing craft or underwater swimming.

In the later stages of World War II, the Royal Marines ably demonstrated their suitability for handling small craft, a field which the regular seaman had long jealously regarded as his preserve. The Marines provided many able crews for the armadas of landing craft which poured from the shipyards to make the landings in Europe possible and to carry the war to the Japanese along the coast of Burma.

The swimmers also have their school in the Portsmouth area. Here we find what I regard as the natural extension of Commando training, the truly amphibious warrior, the "underwater Commando."

Chief among these are the "frogmen," so well named from the appearance they achieve with their weird breathing helmets, tight-fitting rubber suits, and froglike flippers on their feet to give speed through water.

These "underwater Commandos" undertook such perilous tasks as preceding the first wave of Allied landing forces in Normandy, braving mines and enemy fire to plant explosive charges among the shallow water obstructions built by the Germans, thus clearing the path for the landing craft.

Also in this category are the "dragon men," who man the submersible canoes or ride torpedoes to steal up on enemy ships and attach limpet charges of explosives beneath the hulls. In World War II, these men were drawn from both Britain's Royal Navy and Royal Marines, and the Marines now carry on the tradition most ably.

NO WARRIOR is more a lone wolf than a "frogman." Such specialists carry on the Commando tradition beneath the waves as well as over them. They indeed require the highest degree of the Commando virtues inculcated at the Royal Commando School, the virtues of determination, enthusiasm, individual initiative, and self-reliance.

Officers from practically all the North Atlantic Treaty Organization nations have visited the Commando School in Devon. The Royal Marines maintain close contact with Commando training establishments in France and Belgium and also have links with Norway.

Britons know they can learn as well as teach. For instance, they study Alpine winter training in France and Norway and may perhaps produce ski-Commandos as well as amphibious warriors in the not too distant future.

The numbers of the Corps of Royal Marines may seem small to nations accustomed to dealing in millions, but it is to be remembered that at Bickleigh and other establishments the Corps is creating a highly-trained cadre capable of rapid expansion in an emergency.

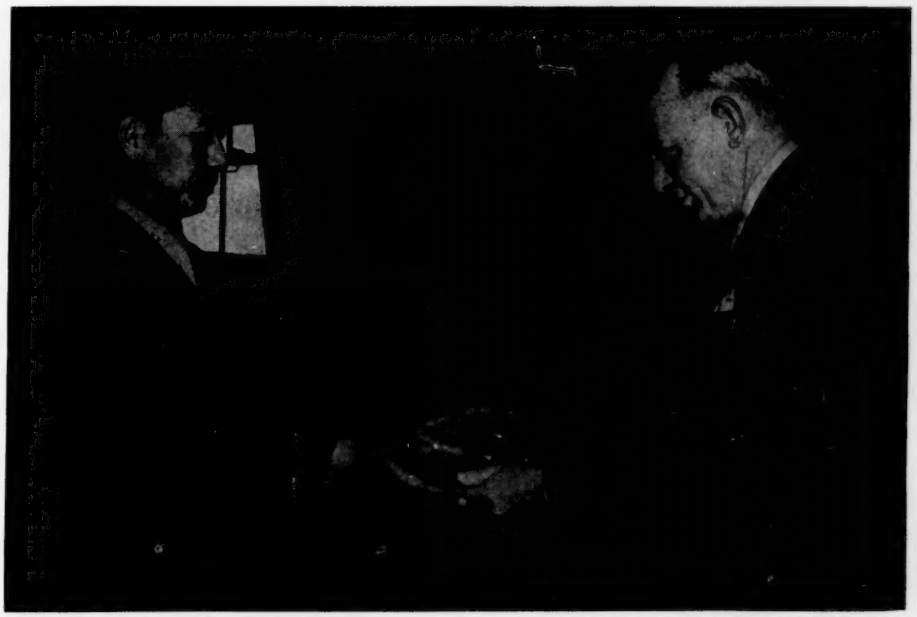
After all, Forty-one Independent Commando was a comparatively small part of the 1st United States Marine Division to which it was attached at the time of the battle of the Chosin Reservoir, but it acquitted itself with gallantry. To me Bickleigh's Commando School explains that. USMC

in brief

Elimination of the carbine from Fleet Marine Forces was recently approved by the Commandant of the Marine Corps. Personnel in both FMF ground and aviation units previously armed with the carbine will be re-equipped with either the M1 rifle or .45 caliber pistol.

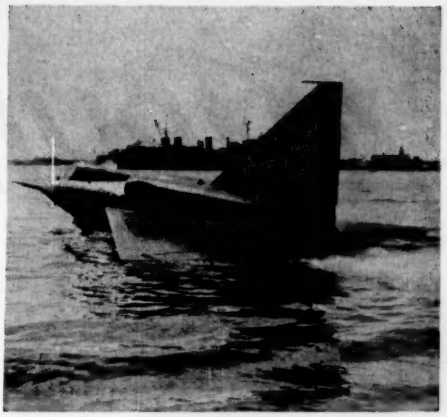
Consolidation of the six recruiting and ten reserve districts of the Marine Corps will soon be completed. Under the new command set-up, scheduled to begin operation prior to April 1, there will be seven districts, each with control over recruiting, reserve, officer procurement, and public information activities in its area.

New Secretaries of the Armed Forces (below) gather for a Pentagon conference. Seated are Secretary of Defense Charles E. Wilson (left) and Deputy Defense Secretary Roger M. Keyes. Standing are (left to right) the Secretaries of the Army, Navy, and Air Force, Robert B. Stevens, Robert B. Anderson, and Harold L. Talbot. (United Press Photo.)



United Press

The Sea-Dart, a revolutionary, water-based plane, is shown (right) as it started preflight trial runs on San Diego Bay. Navy officials say the new aircraft combines the performance of high-speed land planes with the "inherent versatility and mobility of sea-based aircraft."



Persons with previous active service in the Marine Corps may now enlist or reenlist for two years under authority of a recent HQMC directive.

A ceremonial sword, gift of Marine officers serving with the Naval Advisory Group in Korea, is presented to MajGen Shin Hyon Zoon, Commandant of the Korean Marine Corps, by U. S. Marine Commandant Lemuel C. Shepherd, Jr. The sword will be regarded by Korean Marines as a symbol of the authority of their commandant.

A tiny land mine, so small it can be carried in the palm of the hand, yet capable of blowing the foot off anyone stepping on it, will soon make its appearance in Korea. Developed by Army Ordnance the new mine is non-metallic and neutral in color, and cannot be located by mine detectors. It costs only $2.50 to produce.

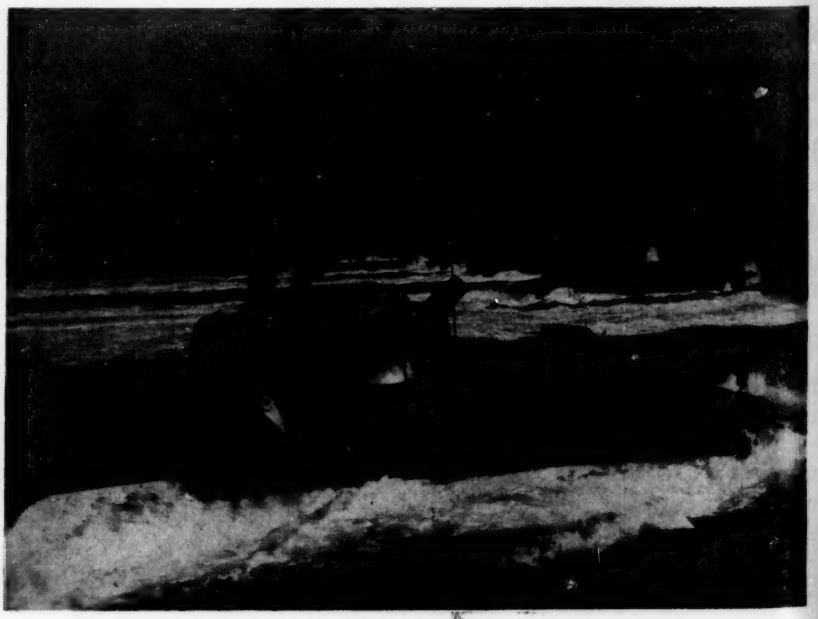
AMPHIBIAN with a future

By LtCol Victor J. Croizat

WHERE DOES THE LVTA FIT INTO present-day concepts of warfare? Early reports from Korea are obscure. Returning officers, from regimental commanders on down, have remarked that the vehicle was seldom considered initially in planning or executing operations. And yet, officers from the 2d Mar Div report that LVT (A) s have been successfully used in training exercises and that the vehicle enjoys a definite position in their organization for combat. Somewhere between these conflicting points of view, there are diversified opinions as to the function of the LVT (A).

While potential users are apparently uncertain just what the future of the LVT (A) may be, the Marine Corps has initiated the procurement of the new LVT (A)-6 in limited quantities. Inasmuch as the cost of the new vehicles is considerable, and their size and fuel consumption exceed that of present models, it appears desirable, at this time, to consider the LVT (A)'s military value.

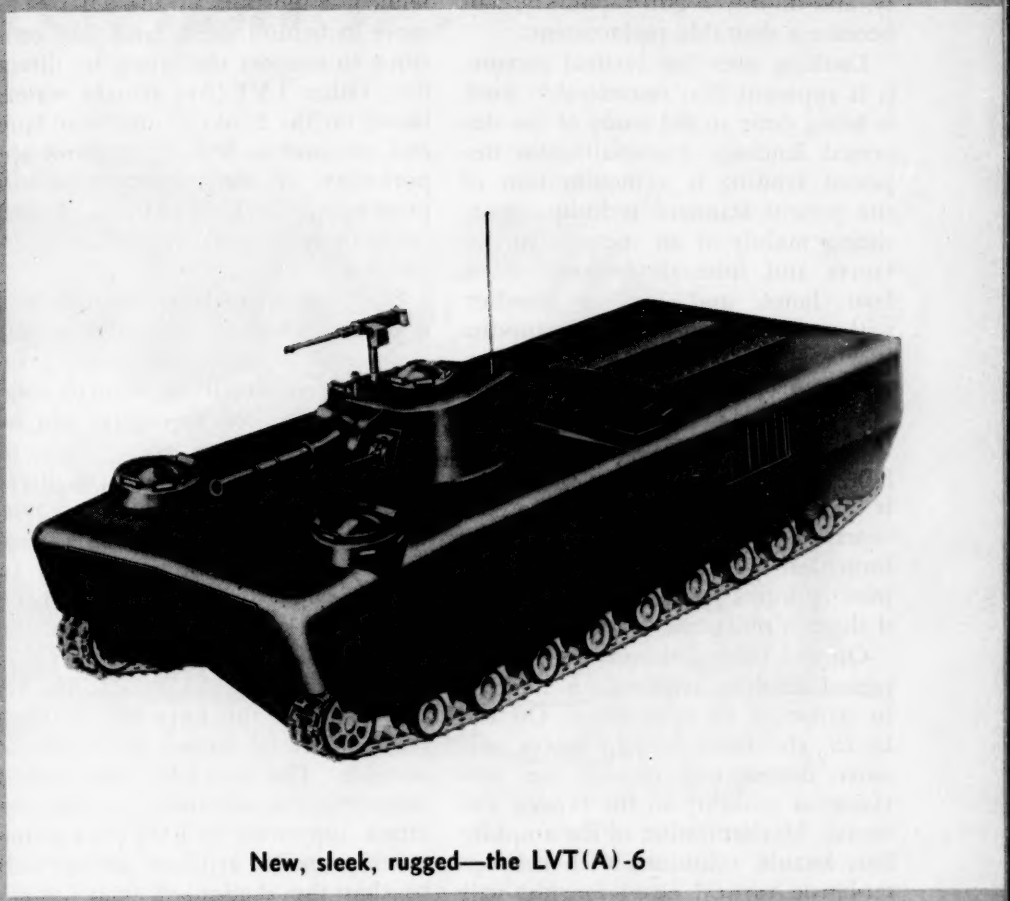
When the first LVT (A) made its appearance in combat, it mounted a 37mm gun in a turret, making it a direct-fire weapon of limited effectiveness. Because of a superficial resemblance to the Marine Corps tank, the organization of an LVT (A) battalion of that period closely paralleled the organization of a tank battalion. Later, despite the introduction of the 75mm howitzer as the primary armament, the LVT (A) organization was not modified. As a result, the 75mm LVT (A), although capable of executing artillery-type missions, including indirect fire, was not organized into



RIGHT: On Okinawa the LVT(A) proved itself as amphibious, self-propelled artillery

units permitting such employment. At Okinawa, certain LVT (A) units, by utilizing "field expedients," were able to make the necessary modifications in their organization to permit their operation in artillery roles. With this one exception, the LVT (A) spent the war leading the assault landing waves to the beach, later providing limited direct fire support in the vicinity of the landing areas.

In theory, the LVT (A) was considered as an interim direct fire and close support weapon for assault troops in a landing. By leading the troop-carrying waves, the LVT (A) could deliver fire on the beach which presumably continued, in a reduced degree, the neutralization effect of the naval and air bombardment when these were lifted. As the troops moved ashore they were to enjoy the benefit of fire support in their immediate vicinity which was beyond the capability of air or naval guns to deliver. Later when the normal artillery landed, the role of the LVT (A) varied from that of a light tank (at considerable detriment to LVT (A) personnel and material) to that of security watches against possible (although improbable) enemy counterlandings.



New, sleek, rugged—the LVT(A)-6

THE FIRST MISSION for the LVT-(A), which was to prolong the effect of the pre-H-hour neutralization fires, was already difficult to resolve. Accurate fire while water-borne was most difficult, and the weight of projectiles which could be fired into the landing area was not sufficient to guarantee the neutralization effect desired. Secondly, the LVT (A)s almost invariably stopped either on the reef or very near the beach. Infantry troops had to by-pass the LVT (A)s. As a result they often had support fires from these vehicles passing uncomfortably close to their heads. Armored forces doctrine specifies that assault armor will be accompanied by infantry—the LVT (A) crews reasonably enough felt that their lack of armor and large silhouette made adherence to this doctrine particularly necessary. Thus, when ordered to precede the infantry ashore, the LVT (A) crews sensed their vulnerability and stopped to wait for and be by-passed by infantry. Again the use of LVT (A)s as protectors of the beachhead flanks often failed to include infantry to assist in such missions. Infantry in turn disliked the LVT (A), first because the LVT (A) often continued to fire as the infantry stepped in front of them, and secondly because their bulk and massed formations invited the attention of enemy gunners.

In all fairness it must be admitted that the LVT (A)s worked hard and tried hard during the war to adapt themselves to their many missions but, like any new thing, they suffered from misunderstandings, misuse, and abuse. As an amphibian tank, the LVT (A) appeared to be more of a misfit than an asset. Finally when it began to emerge as amphibious self-propelled artillery, as at Okinawa, its value certainly increased. By then, however, the war was nearly over and the refinements that further combat employment would have provided never materialized.

HAVING BRIEFLY TOUCHED upon the past, it now becomes necessary to consider the future, if the evaluation of the LVT (A) is to be made in its proper perspective. What then is the vehicle itself capable of doing? First, the LVT (A)-5 and the new LVT (A)-6 must be considered as self-propelled amphibious artillery. The former ve-

An orphan through most of the Pacific campaigns, the LVT(A) gained a new lease on life at Okinawa. Now it is coming into its own—don't sell the armored amphibian short

hicle, now obsolete, still lends itself to this role. The latter, by virtue of increased speed, mechanical reliability, and improved gun capability, will become a desirable replacement.

Looking over the tactical picture, it is apparent that considerable work is being done in the study of the dispersed landing. Essentially this dispersed landing is a modification of the present standard technique, consisting mainly of an increase in distances and intervals between ships, boat lanes, and landing beaches. without going into details, it appears that the vulnerability to atomic attack of a force engaged in a landing can thus be reduced to acceptable limits by such dispersal. Unfortunately, this advantage on the seaward side is opposed by a disadvantage on the beach. Units landed in dispersed formation are faced with the need for joining forces as rapidly as possible if there is resistance to overcome.

On the face of things then, a dispersed landing requires an increase in tempo of all operations. On the beach, the need to join forces and move inland will require the provision of mobility to the landed elements. Mechanization of the amphibious assault, combined with helicopter-borne vertical envelopments, will continue to permit landings against opposition even in the face of high-destruction weapons. Mechanization of the amphibious assault is essential if the dispersed landing formation is adopted, and this mechanization must be based upon amphibious vehicles if uninterrupted movement from ship to shore is to be realized.

In the light of such tactical developments the LVT (A) obviously assumes a prominent role. How then should this vehicle be employed? Because of beach mining and because LVT (A) s must be accompanied by infantry, they can no longer be in the first wave. Increased distances between boat lanes permit the use of flank areas for LVT (A) maneuver. The initial role for the LVT (A) then is to move towards the beach along the flanks of the boat lanes with the first troop-carrying wave.

Staying outside the surf zone initially, the LVT (A) s cover by fire the flanks of the troops being landed. Targets engaged would be those in the immediate vicinity of the troops which could be kept under LVT (A) observation. Once the first wave has landed, a portion of the LVT (A) s move in behind them, land, and continue to support the attack by direct fire. Other LVT (A) s remain waterborne on the flanks of the boat lane and continue to fire on targets of opportunity. As the movement inland progresses, all LVT (A) s land and continue to support the troops by direct fire.

Up to this time the fire delivered is by individual LVT (A) s at targets designated by the accompanying infantry or observed by vehicle commanders. As soon as control can be exercised LVT (A) s then begin to function as artillery, furnishing direct or indirect fire as required. Once normal artillery lands, the LVT (A) furnishes reinforcing fires as directed. In the case where the troops do not need to disembark from LVTs to fight, the LVT (A) s can proceed inland in rear of troop-carrying LVTs. Tanks required to give this force its full shock power must be landed as rapidly as possible. The tank-LVT transported infantry team will then continue the attack, supported by LVT (A) s acting as self-propelled artillery. It may well be that the rhythm of such attacks will be so rapid that normal-wheeled artillery support will come into play only in the breakout from the force beachhead line.

Examining the course of events described above for the amphibious assault, a number of factors appear to merit further consideration. These factors include:

1. A landing on a defended coast must concern itself with the likely probability of encountering extensive mining. Under such circumstances, LVT (A) s employed in their current role of first-wave vehicles will be subject to heavy losses on the beach. These vehicles thus cannot land ahead of the infantry and engineers.

2. Because of the interval between landed elements, the problem of protecting the numerous flanks will seriously complicate air and naval gunfire support. The LVT (A) s laying off the beach can provide flank protection by being near enough to place accurate, close support fire while presenting a very poor target by virtue of being water-borne.

3. As infantry moves inland, LVT (A) s can follow and provide assault gun support. Utilizing the terrain as a shield, LVT (A) s can effectively perform such missions by firing from defiladed positions. While it is realized that 3.5-inch rocket launchers and recoilless rifles place formidable firepower in the hands of the infantry, a vital problem in the assault is ammunition supply. Infantry then must rely on some outside source for heavy, direct fire support. This outside source must have the capacity to provide sustained fire; the LVT (A) can perform this mission. But, careful consideration must be given in planning to insure that the landing area does not become saturated with LVT (A) s. The density of these vehicles must be such as to derive the maximum support from the minimum number of machines.

4. Effective shock action for continued movement inland depends upon the rapid landing of tanks. In landings on land masses which lend themselves to "triphibious" assault, tanks must come in as early as possible. The tank-infantry combination (and whenever possible infantry transported in armored amphibious carriers) will provide the spearhead. This combination, supported by LVT (A) fires, appears to be the required grouping for the mechanized amphibious assault.

ONE CAN THUS CONCLUDE that the LVT (A) will gain ever-increasing prominence in amphibious operations. Again it cannot be overlooked that with work being done on tank flotation devices, we are rapidly approaching the time when the Marine division will be an armored amphibious division. Coupling the mobility on land and sea with that provided by the helicopter, we are moving toward a new concept of amphibious operations. Mobility translated into tactical flexibility will permit displacement in dispersed formations and rapid concentration for assault. Continuing the trend towards cross-country mobility will remove the river as an obstacle, reduce dependence on road networks, and yield a larger selection of possible areas open to attack. USMC

I'd *had it!*

"Nineteen years I been in this outfit and nobody ever told me to wear garters before."

By Cdr James C. Shaw, USN

WHEN THE NEW SQUADRON COMmander reported to the pre-war Asiatic destroyers, we wondered apprehensively whether he would emerge as a "sundowner" or an "easy Joe." Our first chance to find out came when he conducted a personnel inspection in a sister destroyer. We despatched the guard-mail petty officer to the other ship with instructions to bring back the word. His report was ominous.

"You guys are gonna have to get the lead out," he warned. "The new commodore will gig you for not shining the tips of your shoe laces. The pharmacist's mate over there says the inspection was tougher than the ones he usta have with the Marines. And, oh yeah, you'll hafta wear garters from now on."

Our sailors listened with dismay, particularly to the part about garters. Bluejackets are congenitally allergic to garters and doubly so in the sticky Philippines. One veteran tar muttered, "Nineteen years I bin in this outfit and nobody ever told me to wear garters before. We'll all get them very close veins the doc talks about."

Disregarding the griping, the ship's store quickly ordered a gross of garters and thereafter it took not only a liberty card but a pair of garters to rate leaving the ship.

ONE MORNING a message alerted us for the commodore's inspection. As chief engineer, I lined up the black gang on the forecastle and gave the men a preliminary once-over concluding with the question, "Is there anyone here not wearing garters?"

A pink-cheeked fireman in the rear rank raised a timid hand and allowed that he had lost his garters that morning. I growled something about "one in every organization" and then turned-to repairing the situation. I singled out the boilermaker and said, "O'Leary, take off your left garter and give it to Bootz behind you. Bootz, put O'Leary's garter on your right leg." Then I spoke to the entire division. "Now when the commodore appears, I'll give the order for all hands to extend *right* feet and pull up *right* trousers' legs."

The commodore looked as formidable as a salvo of 16-inch shells when he burst onto the forecastle a few seconds after the swap. He acknowledged my salutation gruffly and then glared down the ranks of men. "Socks!" he said. "You can't pin them up; you can't nail them up. You've got to wear garters. Let's see them. Like this ——"

Resembling a man about to go wading, he pulled *both* his own trousers' legs high and commenced an inexorable all-seeing advance. USMC

1/1 closes with the enemy, the last barrier is removed, and history is made

LAST BARRIER

By S. L. A. Marshall

PART II

AT DARK ON 8 DECEMBER, THE snowfall ceased and the cold intensified. Down along the canyon road near the water gate, a brisk wind was piling the drifts high as the head of a man.

At the battalion CP, which was partly sheltered by the canyon wall, the thermometer read fourteen degrees below zero. Up on the windswept crags where Able Company was clearing Chinese dead from the bunkers to make room for its own ranks, and at the same time preparing to evacuate its own casualties down the iced slopes of the mountain, it must have been a touch colder than that, though there was no reading of the temperature.

All batteries had frozen. Weapons were stiffening. The camp long since had run out of water because of the freezing of canteens. To ease their thirst, the men ate snow and seemed to thrive upon it.

But of the many problems raised by the weather, the most severe one was getting an average good man to observe what the field manuals so easily describe as a "common sense precaution."

For example, prior to marching from Chinhung-ni, Capt Barrow of Able had made certain that each of his men carried two spare pair of socks. But that safeguard did not of itself insure his force, though the men, with feet sweated from the rigors of the day, were all at the point of becoming frostbite casualties by the hour of bivouac.

Let Barrow tell it. "I learned that night that only leadership will save men under winter conditions. It's easy to say that men should change socks; getting it done is another matter. Boot laces become iced over during prolonged engagements in snowdrifts. It's a fight to get a boot off the foot. When a man removes his gloves to struggle with the laces, it seems to him that his hands are freezing. His impulse is all against it. So I found it necessary to do this by order, staying with the individuals until they had changed, then making them get up and move about to restore the circulation."

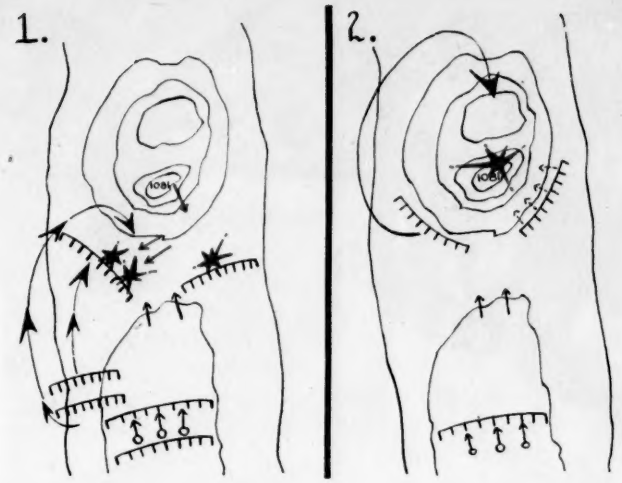
That process, simple in the telling, consumed hours. By the time Barrow was satisfied that his command was relatively snug, it was wearing on toward midnight. Right then, his perimeter was hit by a counterattack, an enemy force in platoon-strength-plus striking along the ridgeline from 1081 in approximately the same formation which Barrow had used during the afternoon.

All that needs be told about this small action was summed in Barrow's brief radio report to Schmuck. "They hit us. We killed them all—all that we could see. We have counted eighteen fresh bodies just outside our lines."

This was the lesser activity of the night, the greater being the evacuation of Able's casualties to the low ground. It was a man-killing task, conducted round the clock. Batallion had detailed the men of H & S Company, with a complement from Weapons Company, to this duty. They walked singly going up, carrying ammunition, and despite the glaciated condition of the slope, they made the climb in about one and one-half hours. But for the descent, they had to group in relay teams of eight men each, just to handle one body in a litter. Without ropes, it would have been impossible. Sometimes they were needed to tie the party together; at other points, they were used to lower the litter down an iced bank where no man could stand.

The downward journey for each evacuation required from five to six hours. The battalion had a forward aid station just behind its CP, and a rear at Chinhung-ni, each under a battalion surgeon. Motors were kept running through the night so that casualties could be speeded to the base.

The plain recital of these difficulties, however, does not begin to reflect the extraordinary hazards of the situation. The 1st Battalion was encamped cheek-by-jowl next to a vastly superior enemy force which had not yet begun to feel the pressure of the division driving down from the north.



Preliminary action on 1081 **Closing attack on 1081**

Though there was nothing to prevent the Chinese from swinging around the left via the canyon floor and closing across its rear, the battalion had to remain committed to the heights if it was to accomplish its mission of safeguarding the division's passage through the worst deadfall along its route out.

Though battalion had given a brilliant account of itself throughout the fight, as things looked on the night of 8 December, its main hope of delivering the package according to plan was that the enemy would suffer even more direly from the one adversary against which they were mutually contending. Even though 1/1's own people were near to freezing, and in the operations of that night was to lose sixty-seven men to frostbite (only six or seven became amputees) *the weather simply had to be on its side.* The main chance was that the weather would produce greater immobility in the enemy camp than in the Marines'. Already, in repeated situations, the division had won through because, while the enemy brutally wasted his manpower against the weather, Gen Smith missed no opportunity to conserve the powers of his men. The deliberate rest periods given the division on its way out are among the salient lessons attending the success of the operation.

But the tactical and human risks still to be faced were but one-half the jeopardy. There was the other great question of whether the technical and materiel calculations would prove sound. The battalion was only standing guard on a peak 1500 yards distant; the breach at the water gate still had to be spanned if the division was to get through the canyon with anything left save numbers of men.

Bad luck in the handling of this bottleneck had dogged the operation from the beginning. But no one looked the other way. In fact, the division's continuing concern with this relatively small fester on its rear gives increased breadth to the maxim that anticipation is seventy percent of the art of command.

Going up the mountain, Col John H. Partridge had recognized that the bridge was a weak link in the MSR chain if winter operations were to be sustained, and had reenforced the structure to fifty-ton strength. A day or two later it was partly demolished, either by guerrillas or CCF.

Meanwhile the 73d Engineer Battalion of X Corps had taken over maintenance of the MSR. They put two sections of steel treadway across the gap and the road was again whole.

Then the Communists struck it again. On 4 December, a reconnaissance flight into the canyon verified that the bridge was blown, the treadway sections had been dropped and the abuttment on the downhill side had been partly destroyed. The gap was estimated at eighteen feet.

Gen Smith suggested that a Bailey bridge be brought up the mountain by corps troops, and emplaced by his own engineers as they moved south in the van of the division. Partridge and his staff returned the answer that the roadway was too narrow at that point to support a Bailey.

By chance the 58th Treadway Bridge Company had been caught at Koto-ri when the CCF attack struck on 28 November. It had the necessary Brockway trucks but no bridging material, the vehicles being loaded with prefabricated housing intended to shelter the Corps CP when it set up in Hagaru-ri.

The request was sent to Hamhung: have a bridge air-dropped on Koto-ri; for double insurance, the 1st Engineer Battalion was asked to proceed from that point up the mountain with a duplicate set of treadway material.

The siege at Koto-ri had also closed on the 185th Engineer Battalion. Its commander was directed to beat the camp for all lumber and other materials which might be used for bridging and to make ready the equipment of the Treadway Company, his attachment.

On 6 December, Col Partridge was flown down over the water gate so that he could personally survey the problem. Returning to Koto-ri, he called Hamhung and was told that a test drop of the bridge had damaged its parts beyond repair. But a specialist parachute rigger was already flying from Japan. He would re-rig with large chutes eight pieces of a treadway which would be dropped on Koto-ri on the morning of 7 December.

They came in on schedule, eight C-119s, carrying the eight bridge sections, center plywood section, pins, etc. Seven of the sections were retrieved, the eighth falling into enemy country. Two of the four plywood sections were salvageable.

The bridge was loaded with its essential pieces on one Brockway truck, the spare pieces and extra lumber aboard a second. This unit was then fitted into the plan for the attack by

. . . and then came in with their hands up

the 7th Marines so that it would be well forward.

On the morning of 8 December, it stood by briefly. At noon the forward battalion of the 7th Marines sent word that the situation was in hand and the bridge could roll. Its arrival amid the attacking battalion coincided with the highest pitch of the snowstorm and a reborn fury in the enemy resistance. Mortar and small arms fire threatened the destruction of the entire hope.

The two Brockways were withdrawn to Col Homer Litzenberg's CP. There was a convenient flat space near his tent which had been used for parking lighter vehicles. The bridge-loaded trucks cut off the road into this area. But the flat space was the frozen surface of a lake. One Brockway broke through the ice, drowned its motor and damaged its radiator. The other Brockway and a pack of jeeps were used to tug it out.

That was enough for Litzenberg. He directed that because of "the tactical situation," the bridge unit be returned to Koto-ri. But because of the dark, the depth of the drifts and the fact that one Brockway was towing the other, they got no farther than the tank park which was just to the rear of the regimental CP.

After this record of adversity and mishap, in which fate had so consistently balked the best-laid plans that the play would have seemed comic had the stakes been less, there was no longer any margin for error.

In the next turn of the wheel, the right number had to come up, and no doubt about it.

Schmuck had to hold.

The bridge had to fit.

Partridge's long-range estimate of the requirement had to match the exact need on the spot.

Either so, or the entire plan for bringing out the division as a whole would dissolve at the fatal gap.

But on the night of 8-9 December, there was no way of knowing. The die had been cast and men could only hope.

The morning dawned sunny, absolutely clear and terribly cold. Able's CO, taking his first view of the weather, concluded that he would get full help from supporting arms, and particularly from the air.

Moving among the platoons, he ordered an immediate test firing of all weapons. It was well so, for about

forty percent of them had frozen, with the carbines and BARs giving the worst trouble. Down at the battalion CP they heard the volleying from this freezing exercise and Maj Bridges called to inquire: "Are you being counter-attacked?"

BARROW ANSWERED that his bullets weren't being wasted. The dome of 1081 glistened in the sun just 500 yards away, and over its surface the Chinese swarmed like a bed of ants on moving day. The machine guns had pointed that way for their warm-up fires. Two or three of the enemy were felled by this automatic volley, but the others paid little heed. At that range the gunners could not see where the bullets were hitting. So Able's CO put his riflemen against the target and under pressure of the aimed fire, the Chinese slowly beat back to their earth holes. By the time the light mortars along the ridge and the heavies from the battalion position had joined the action, it was too late to catch any important number of the Chinese in the open. Point 1081 looked almost depopulated, as did the intervening portion of the hogback.

Able Company expected to encounter little trouble as it jumped off in the same formation as the day before, with First Platoon in the assault, followed by Third Platoon and then the mortars. But immediately the squad working along the slope on the right flank came under direct fire from two machine guns on 1081 and had to take refuge behind the rocks. Barrow saw clearly enough that their way was barred, and adding a LMG section to the flank, directed the men to continue their fire against the main knob.

The bridge . . . stout enough to withstand . . . the passage

Meanwhile the squad working along the left slope in relative defilade had made rapid progress. Gaining to within 200 yards of the big knob, it was suddenly brought under machine gun fire from its direct right. A hitherto concealed position, the CCF were holding two bunkers in a saddle about 175 yards short of 1081. From behind rock cover, the squad engaged this block with rifles and BARs, firing steadily but making no effort to rush. While the diversion continued, a third squad was sent on a wider sweep along the same flank, and coming at the bunkers from their blind side (still without being observed from 1081), killed the inmates with grenades and rifle fire in a closing rush without losing one man.

Able now held the whole ridge except for 1081. Almost within throwing distance, it towered seventy-five feet above the saddle which he had just gained. The 60mm mortars were advanced to the rocky battlement from behind which the LMGs had been firing, and fired forty-three rounds against the big knob, which was all they had. There was no noticeable effect, other than that the automatic fire from the height was temporarily depressed, enabling the CO of A Co to get his two assault platoons forward on both sides of the ridgeline, until they were deployed in an arc around the final objective, 150 yards from the summit. From behind crag cover, the riflemen maintained a steady fire against the peak. Such was the perspective that even at this short distance the bunker embrasures looked like a hairline.

That was when the air was brought in. Capt Robert B. Robinson, the air officer of 1/1, had been with Able through the morning, and from the boulder-strewn knob just to rearward of the two platoons had witnessed their squeeze play against the last redoubt. The 60mms had put a few smoke rounds on the summit just as a precaution, though its mass was almost unmistakable. Already orbiting, the four aircraft were under control by Robinson via a back-packed VHF radio. They followed SOP. First there was a dummy run, then a quick strafing pass to make sure they were exactly on target. Thereafter it was up to the flight leader to make his

own runs in the direction indicated, and drop his bombs and rockets with no further corrections from the ground unless he got off target.

Directly atop 1081 there was a double telephone pole—the perfect aiming stake. Each plane made five passes. The air officer was just 200 yards away while he was calling the strike, and the closest men in Able's line halved that distance. They saw several of the 265-pound frag bombs land dead on, smashing two of the bunkers and killing their crews. As the smoke lifted, one Chinese jumped up in clear silhouette and turned to run from the hill. Rifle fire cut him down before he could take a stride.

In the middle of the strike, Able Company had been moving. First Platoon, on the left flank, displaced once again down the westward slope, and made a circuit halfway around 1081, so that when it emerged once again on the skyline, it was approaching the redoubt from the north. For the first time during the operation, it was advantaged by good tree and underbrush cover at it made the swing around. During this envelopment, the men still confronting 1081 did not cease fire, but in keeping with the maneuver, shifted their line more and more to the right.

So they were all ready for the final play, and right then occurred one of those happy accidents of timing which so frequently build the fortunes of men who are willing to make their own luck in battle. As First Platoon came out on the skyline, some one of its members happened to glance out northwestward toward the Koto-ri road. Someone yelled: "Look! There comes the division!" True enough they could be seen now, perhaps a dozen men turning the bend in the road on the far side of the canyon, obviously the point of the 7th Regiment in the van of the division column. Others took up the cry; it was the only spur the attack needed; all hands knew that 1081 had to be taken and the Chinese cleared from every other point whence they could fire toward the wrecked bridge before the division main body began the descent into the defile.

First Platoon bounded toward the cap, and once in motion, slackened its pace only as the detail of hitting or being hit so required. It was no push-over. On the reverse slope, where the air had struck, the Chinese responded numbly to Third Platoon's fire. Had it been done at once, the hill might have been carried more easily from that side, but the other maneuver was already two-thirds complete and to countermand it would have wrought only confusion. So there was no choice but to continue on the hard way.

Upgrade perhaps thirty feet or so, two bunkers were directly athwart First Platoon's path. No machine guns here, but only rifles, sub-machine guns, and potato mashers, with both ports still blazing and the grenades showering down seemingly out of nowhere. Seven or eight of Able's men went down; the survivors rushed straight for the embrasures and killed the bunkers by tossing in their last grenades. Not one Chinese made any attempt to surrender, though perhaps twenty of them were shot down in the open as they arose from among the rocks on both sides of the bunkers in an effort to break the charge with small arms fire. Subsequent examination showed that the majority of them had been armed with U.S. carbines.

The fight was not yet over. First Platoon had silenced only an outwork of the north slope position. From this minor terrace the men saw a line of four bunkers another thirty yards upslope. Until then masked to their sight, these positions had remained in defilade to the fires put against the cap from both directions.

There was only one visible source of resupply for this job. Dead Chinese littered the ground just taken. In each bunker (these installations were five feet deep in the ground, log-walled and with an eighteen-inch earth roof) there were about seven or eight enemy dead. Most of these figures still had a few potato mashers slung in their belts. While First Platoon collected the enemy grenades, a reenforcement from Third Platoon crept around 1081 to build up the pressure against the bunker line by fire and grenading from the flanks.

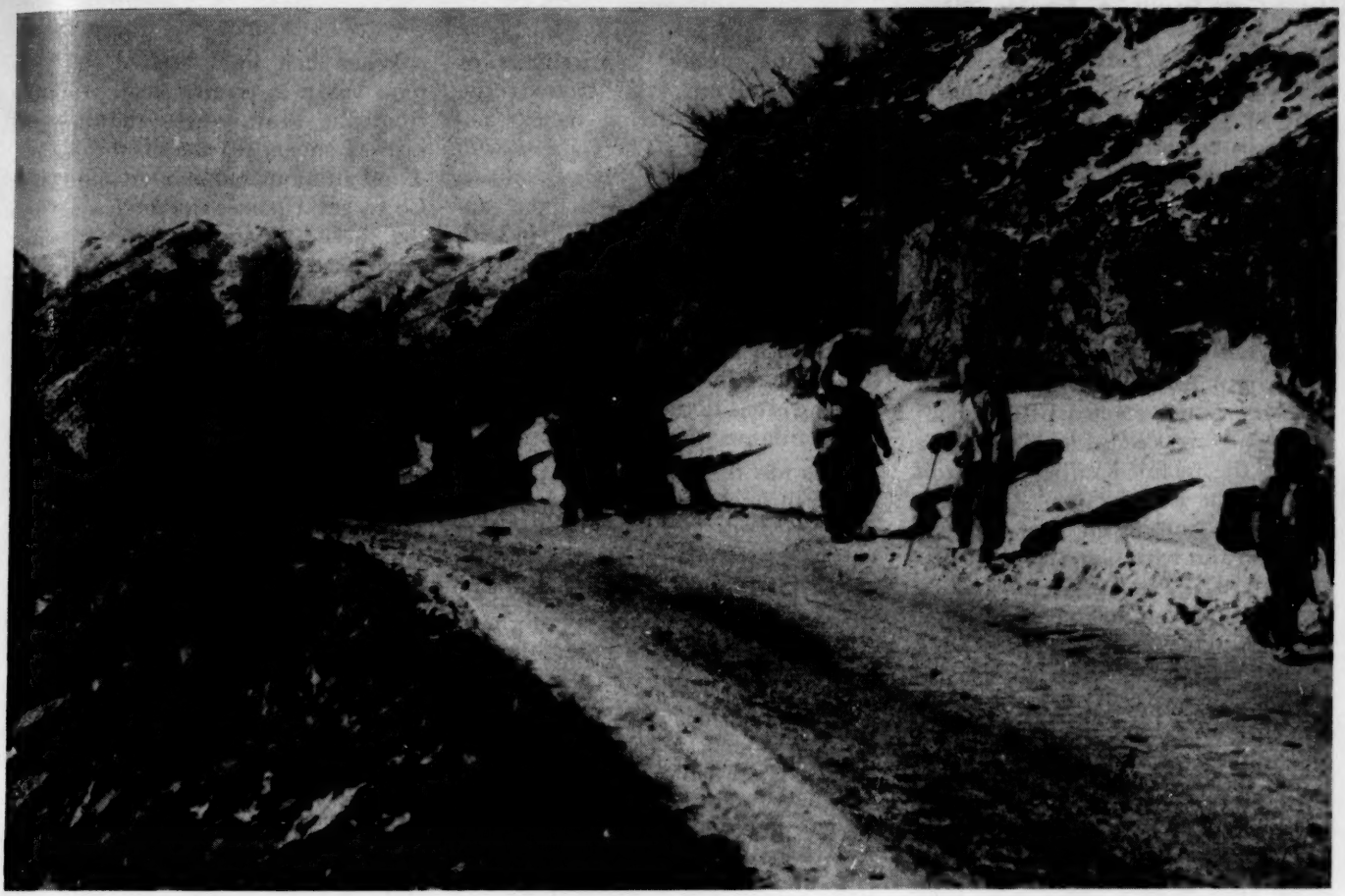
This closing scene was handled a little more deliberately and stealthily. Using rock cover, the Marine line simply made it a squeeze-out, the rifles and the BARs keeping the bunker line practically neutralized until the grenadiers could crawl forward to within killing range. In another half hour it was over. No Chinese had gotten away from Hill 1081. But it had been a tenacious garrison and not one member of it survived to tell how things had been with the defender.

Those who saw this ruin under the noonday sun recalled most vividly its startling contrast. For as far as eye could see the countryside wore a white blanket. But the de-iced and shattered cap of Hill 1081 had been burned black by the shelling and bombfire. Within the boundaries of this torched area, the victors counted more than 300 Chinese bodies.

Down in the canyon, however, the situation was still in flux, and though the linchpin of the general position was gone, enemy bands were continuing a disorganized resistance. Whereas Barrow's problem was the relatively simple one of loosing a battering ram against a brick wall, Noren was pressed to find anything solid on which to crunch. There were Chinese all about him but they were peculiarly elusive.

Baker's night had been quiet, only one Chinese having blundered into its lines. But Capt Noren, awake at his post all night, saw no bright omen in that fact. He said to the others, "Wait till dawn and you'll see them swarming." First light confirmed his powers as a prophet. He glanced up the road, and to the ridges beyond; the vista was alive with people, but there was no pattern to what they were doing; most of them were milling about in small groups, and at least half seemed to be unarmed. This was the beginning of the backwash from the division's drive out of Koto-ri, the trapper recoiling into his own trap.

That quick look also showed the CO of Baker that in the dark of the previous evening he had missed his proper objective by one ridge fold, and was not in position to cover the hairpin turn. Baker corrected that by banging ahead immediately, re-establishing its weapons right on the pivot.



Streams of refugees . . . coming down the ridges

Even this brief movement showed who was master. Instead of concentrating toward the thrust, the Chinese gave way, scampering toward the high ground east and west. Baker had already registered its supporting 105s on the ridges ahead, and found their fire so erattic that the CO hesitated to use it. (This is a not infrequent entry in the Reservoir operation.) Communications with the 4.2 and 81mm mortars were out, and were not re-established until midmorning. So Baker went pot-shooting with the 155mm howitzers as a man might bang away at quail with a scatter gun. Consistently, the shells came in right where the CO wanted them. So he kept calling the 155s to chase Chinese up and down the road and blast them from the ridge tops. Concurrently his own machine guns and rifles at the bend of the hairpin were chopping down an incoherent mass not more than 200 yards away—Chinese trying without plan or leader to break through along the road. It was an act of utter hysteria.

As the morning wore along, these signs of mass frenzy increased. Buffeted by the point of 7th Regiment pushing down from Koto-ri, finding no thoroughfare via the canyon road, these increments succumbed emotionally to the vestiges of an entrapment not even half-formed. Schmuck, who watched this phenomenon develop, said of it: "The column flushed them into our foreground as beaters drive birds into a blind. All day it went on. Noren had a clear view of the whole slot and put the mortars and artillery on them when they were beyond range of company weapons. If they tried to escape eastward over the ridges, they came under Barrow's fire from 1081, or were hit by air strikes called in by Robinson. From the high ground northward of us, they could range in on our lines with mortars and machine guns. But they were too panic stricken to settle and so their fire went wild. Charley Company had extended to the westward along the east-west ridge to tie-in with Able; that strengthened our command of the high ground. From our part of the road, the Quad-50s were in perfect position to bring down what the other weapons missed."

At noontime came the first brief interlude in this ordeal of carnage. From the heights, at a decisive moment, CO Able Co had seen the point of 7th Regiment during the approach. The battalion commander witnessed the same group of riflemen as they began their descent into the canyon. There was one excited moment of waving and yelling across the far spaces. But the new entry was only a small patrol from Baker Company, 7th. Chinese hidden in a thicket directly across the canyon from the battalion CP brought them under fire. In a flash they had vanished, at least from Schmuck's ken. But Noren had a better view of the incident. He saw a CCF machine gun open fire on the patrol. He saw seven Marines attack up the hill behind the fire of one BAR. He saw the seven go into the thicket throwing grenades, and when they came out a few minutes later the machine gun was silent, and the seven still seemed to be all right. Then the patrol became lost to sight. Some

time later they entered 1/1's lines, helping along five walking wounded. Quitting the road, they had reached home base via a circuitous route through the canyon.

Using the patrol's radio, Schmuck raised First Battalion, 7th. But the van of the column was still some distance away.

WITH THE COMING of twilight, the enemy numbers suddenly thickened. The new bands seemed better organized and proceeded to positions astride the inclined railway and confronting the hairpin turn. Guns and tubes were running short of ammunition. So the battalion CO called for an air strike and eight planes responded to give him the best show of the day. One 500-pound bomb exploded dead center on a large building that was packed with Chinese. The others strafed liberally up and down the tracks and blasted the buildup with a rain of rockets.

Still the numbers grew. When shortly afterward, CO 1/1 got a call from First Battalion, 7th, with the message: "We're about to come through," he answered, "My God, don't do it! Half the road is still held by Chinese." The reply was final: "Can't help it; the pressure is on from the rear."

At that point, perhaps, Schmuck was being a little unrealistic. The mobile Brockway carrying the treadway (the damaged vehicle had proved such a hindrance that it had been left behind) had already reached the water gate under heavy escort and the bridging operation had been going on for several hours amid all the fire. A quick survey showed that additional demolitions had now widened the gap between solid abutments to twenty-nine feet. The solution recommended on the spot was to build on the downhill side a cribbing structure which would narrow the gap to dimensions suitable for the treadway. The engineers had not brought forward enough material for this job, but they quickly prowled the hydroelectric plant and came up with what they needed. By late afternoon the bridge looked stout enough to withstand the column's passage. The engineers sent word to the tactical body to come on down the mountain.

The main body and vehicles of First Battalion, 7th, crossed the bridge first and entered Baker's position about 2300. The Chinese who were still confronting Baker took a few half-hearted shots at the approaching line and then came in with their hands up—300 of them. "Buzz" Sawyer the battalion commander passed the prize over to Baker Company which later marched them down the hill to Chinhung-ni, whence they were escorted to the coast by elements of 3d Infantry Division.

This was the beginning of the long march-through which kept Able and Baker tied to their snow-banked diggings through all the next day.

Again on this night the enemy crumpled to the attack by the cold and made no effort to harass the column's passage. But disaster of quite another sort threatened just as the movement got well underway. A TD18 engineer dozer hauling an eight-cubic yard pan started across the bridge. The treadways in construction had been spread for use by the M26 tank and the plywood center section, suspended on a tracer bar, was thought to be capable of sustaining all weights and treads other than the M26. But the plywood centerway collapsed under the weight of the dozer, and one treadway track went down. That left the tractor suspended in midair, and to the eyes of the engineers it looked that the bridge was ruined beyond repair.

TSgt Prosser mounted the dozer atop the tottering structure, and by some magic which the others never understood, managed to manipulate it back onto solid earth. The plywood centerway was removed and the failed spacers taken out. Then by the sweat of many men and ingenious use of the tractor blade — it being employed as a lever—the treadways were put back into position. All of this was done in darkness except as the feeble glow of a few flashlights assisted the operation. Hundreds of men were milling around on the nigh side of the gap, including fifty Chinese prisoners who had chosen this hour to surrender. The flashlight wielders had to stay there through the night so that the now malformed treadway could be illuminated.

When first light arrived, the column began to receive small arms fire from the draw where the inclined railway cut out to the northeastward. The battalion commander told Baker Co to get a patrol up there and stop the racket. Two squads went along reenforced with a 3.5 rocket team. They quickly located the Chinese in two stoutly-formed bunkers, halfway up the ridge. The first was knocked out with four rounds from the launcher. The second was too well-fronted with brush for the rockets to cut through. The rifle squads took it with fire and movement, using hand grenades at the finish. Four Chinese were killed, two surrendered, four got away. Each nest had contained one machine gun. The patrol got back with only two men slightly wounded.

THAT WAS THE FINAL SKIRMISH around the water gate. It took the division column twenty-eight hours to pass through Baker's roadblock. When at last the tank battalion cleared, Schmuck ordered Barrow to come down from his icy hilltop. The dead came out with the living. The score was counted: total losses were forty-seven killed and wounded and 190 cold casualties. CO 1/1 also checked his other list on which he had kept tab of the division units passing through: it was complete.

But still they tarried. Streams of refugees were coming down the ridges trying to escape the Chinese; all converged on the treadway bridge. Thrice a charge of 800 pounds of Composition C placed under the span had been at the point of detonation, and thrice the blast had been deferred to accommodate the wayfarers. Finally the road cleared, and at 0200 on 11 December, CWO Willie S. Harrison blew the bridge.

Schmuck formed the battalion and accompanied the armor down the mountain. As he expressed it, they were delighted with one another's company.

All hands could then look back over the road traveled and reflect with understanding on the words of the division commander: "Not even Genghis Khan would have put an army across these mountains in the wintertime." USMC

KOREA AWARDS

Medal of Honor

Cpl Jack A. Davenport, 2dLt George H. Ramer.

Navy Cross

1stLt John Yancey

Distinguished Service Medal

BrigGen William J. Whaling

Silver Star

PFC Aurelio S. Alfeo, LtCol Gerard T. Armitage, Cpl Michael D. Banko, Jr., Sgt Robert A. Baur, 1stLt Charles W. Blyth, PFC Raymond L. Bowden, 2dLt Donald S. Burgess, Sgt Harvey R. Carter, Jr., PFC Bradley F. Cate, PFC John R. Clark, 2dLt Henry J. Conlin, PFC Charles R. Connelly, Jr., PFC Donnell O. Crowder, Cpl James Davis, Jr., PFC Melvin H. Deegan.

Cpl Robert Diaz, 1stLt Charles S. Dunne, TSgt James A. Harrington, Cpl Samuel A. Hillgrube, PFC Gerald J. Holmes, Cpl Jimmie E. Howard, Pvt Carl S. Johnson, 2dLt Homer E. Johnson, PFC William L. Kasfeldt, Cpl Curtis J. Kiesling, TSgt Edwin L. Knok, Cpl Robert L. Larson, PFC Joseph F. Lawler, Cpl Robert T. Lindstrom, 2dLt Edward Lukas, 1stLt Russel W. McNutt, SSgt Arnold J. Marsili, TSgt Billie W. Martin, LtCol Henry S. Miller, PFC Frank O. Moore, Jr.

PFC Ronald L. Moore, Sgt Sumner E. Nichols, 2dLt Lawrence A. O'Neil, TSgt Peter A. Padula, PFC Lewis J. Peters, 2dLt Alphonse M. Pomocky, SSgt Charles P. Quesenberry, Cpl James E. Ragsdale, PFC Charles Raymond, 2dLt John F. Rogers, Jr., PFC William T. Rollins, PFC Augustine E. Salazar, Capt Sereno Scranton, Jr., PFC Richard L. Spafford, Cpl Bernard R. Stickler, 2dLt James J. Weiry, 2dLt Leonard E. Wood, TSgt Edwin M. Wright.

Legion of Merit

Col Robert O. Bisson (2d), LtCol Walter F. Cornnell, Col Thomas A. Culhane (3d), Col John F. Dunlap, Col Walter N. Flournoy, LtCol John E. Gorman, Col Keith B. McCutcheon (2d), LtCol Spencer H. Pratt, LtCol John A. Saxten, LtCol John D. Wiggins.

Distinguished Flying Cross

Capt Edward L. Abner, 2dLt James M. Bannan, 1stLt Joseph L. Barr, Capt Arthur W. Bauer, 1stLt Lewis E. Bobbitt, Jr., Capt William H. Boodro, Capt Lawrence H. Brandon (3d), Maj Neal E. W. Bredesen, Capt William A. Brockman, Capt George Byers, Jr. (2d), Maj Robert A. Collett, 1stLt Robert W. Cooney, Capt Otis W. S. Corman, 2dLt Reginald J. Cox, 2dLt Max L. Darling, LtCol Robert R. Davis, Capt John A. Deitz, Jr., MSgt Leon F. Devillier, Maj George E. Farrell, Capt Norman I. Frederickson, Capt John W. Gilbertson.

Capt George F. Good, III, Capt Jack R. Grey, Capt Kenneth G. Hadcock, Capt Robert V. Henshall (2d), Capt Fred C. Houser, 1stLt Gerald J. Hutchison, Capt Frank M. Jackson, Jr., Capt Harold F. Keller, Capt Jack G. Kelly, Capt David H. Kennedy, MSgt Leo H. Kennedy, Capt William W. Knight, Jr., Capt Duane G. Lynch (2d), Capt Robert E. McCluen, Capt Harold G. McRay, Capt Archibald M. Mann (2d), Maj William P. Mitchell (5th), Capt Frank L. Moister (3d), 1stLt Dale M. Molsberry, 2dLt John D. Morgan, MSgt Paul Ninichuck.

Capt Andrew W. O'Donnell (3d), MSgt Samuel H. Oerly, Capt Robert Rause (2d), Capt William Regas, Capt Edwin O. Reed, Capt Harold R. Reed, 1stLt Harry E. Ringler, Jr., 1stLt Dayton Robinson, Jr., Capt Anthony J. Roscoe, MSgt Joseph A. Ross, 2dLt Adolph G. Sadeski, Capt Charles C. Samis, Maj Hartwell V. Scarborough, Jr., 1stLt Joseph R. Schiavo.

Capt Richard J. Schriver, Capt Charles C. Schwartz (3d), Capt Robert G. Scribner, Capt LeRoy A. Seipp, Capt Beryl B. Sessions, 1stLt Ronald I. Severson, 2dLt Charles A. Sewell, Capt John E. Shields, Capt Robert F. Shields, 1stLt John Sirois, Capt Herbert D. Smith, Capt Raymond M. Smith, MSgt John R. Stone, 2dLt Joseph G. Stringi, Maj Robert F. Steubing (2d), MSgt Hubert Tinsley, MSgt Charles W. Tippie, 2dLt William S. Torrence, Capt William A. Tulk, 2dLt Goddell P. Warren, Capt Robert F. Warren (2d), 1stLt Charles A. Weaver, 1stLt William J. White, 1stLt Kenneth E. Will, 1stLt Duke Williams, Jr., Capt Earl H. Yeager, Capt Warren R. Young, Maj Clarence L. Zieger, Jr.

Bronze Stars

Cpl Clayton S. Alverson, Cpl Bruno C. Anderson, PFC Charles P. Atterbury, PFC Roy R. Aucker, Jr., Capt Calvin R. Baker, Cpl Valentino Bandera, LtCol Hoyle R. Barr, Cpl Billy Barton, PFC Albert H. Beahm, CWO Herbert W. Beard, PFC Armand J. C. Beaudin, 1stLt George H. Benskin, Cpl Frederick R. Bettes, Cpl Edgar L. Billups, PFC Bobby B. Bradford, 1stLt Donald T. Brennan, PFC Rodgers J. Broussard, PFC Carmine D. Burzumato, Capt Nathaniel H. Carver, 1stLt Melvin L. Cheesman, Sgt James J. Cribbs, Sgt Gerald O. Davis.

Capt Walter P. Dean, Maj Edward A. Dicksen, LtCol Kenneth P. Dunkle, Cpl Thomas W. Everett, PFC James M. Fairbairn, Cpl John J. Fitzgerald, 1st Lt George G. Flood, 1stLt Rupert L. Fogle, Maj LeRoy T. Frey, Sgt Donald A. Gardner, PFC Richard C. Garza, 2dLt Thomas I. Gerard, Sgt Charles G. Gersch.

PFC William J. Haley, SSgt William A. Hall, Cpl Donald E. Hamilton, Sgt Kavanaugh J. Harrington, Jr., PFC James T. Harrison, Cpl Aaron L. Hertz, PFC Brett A. Holstein, Maj Charles E. Ingram, Sgt Maurice Israel, PFC Hubert L. Ivie, PFC George E. Jack, Sgt Robert A. Johnson, SSgt Hurshel L. Jones, 1stLt Randlett T. Lawrence, MSgt Edgar H. Lee, MSgt Joel D. Long, Cpl John W. Lowe, Sgt Charles V. Lyman (2d), Maj Howard L. Mabie.

Capt Byon M. Morris, Cpl Lennis W. Mueller, 2dLt Joseph Q. Nesmith, Cpl Edmund R. Oltz, Jr., Cpl John C. Ontiveros, PFC Edward J. Orlowski, Cpl Edward A. Peeples, PFC Victor A. Perry (2d), 1stLt Don G. Phelan, 1stLt William R. Phillips (2d), Maj Herbert E. Pierce, Cpl Charles L. Platt, PFC Luis Rascon, Cpl John D. Reardon, 2dLt Joseph D. Reed, Capt Maurice A. Reep, PFC Kenneth L. Retallack, PFC Robert W. Reynolds, LtCol John F. Ross, Jr., 1stLt Robert W. Schmidt, Sgt William H. Scott, PFC Edwin P. Seaton, 1stLt Nicholas J. Sheppard, Col John W. Stage (2d), CWO Patrick L. Sumners.

1stLt James L. Burnett (2d), Sgt Matthew R. Butler, Maj Charles C. Crossfield, III, TSgt William W. Culver, Cpl Roy A. Fairchild, PFC Paul D. Paulconer, Capt Kenneth L. Fellows, Sgt Andrew M. Follar, PFC Glenn E. Frazier, PFC Billy V. Gibson, FC Norman R. Gilley, LtCol William M. Gilliam, 1stLt Arthur W. Giltsrap, Capt Harold R. Gingher, Cpl Miguel C. Gonzales, Sgt James E. Gregg, Capt Everett Hampton, LtCol Dale H. Heely, Cpl Billy G. Helms, PFC Alvin D. Harvey, PFC Arthur A. Hill, Maj Harold S. Hill, Capt Walter L. Hill, 1stLt Vincent K. Hinson, PFC Richard E. Hussey, Pvt Erwin W. Hyatt, 1stLt Edmund W. Jaworski.

1stLt Corbin J. Johnson, PFC Almer Kline, Sgt Robert A. Kopsitz, SSgt Moses M. Koury, Cpl Robert C. Larson, 2dLt Harris J. Levert, Jr., PFC Maurice E. Lewis, Maj Charles A. Lipot, Sgt Harold J. Lund, 1stLt Richard D. McClintic, 2dLt Robert B. McIntosh, Sgt John McLaughlin, Sgt Miller E. Middleton, Cpl Joseph E. Miler, Maj William P. Mitchell, LtCol Sherman W. Parry, PFC John Z. Polizous, Maj William T. Porter, Capt Clarence H. Pritchett, PFC James K. Privitt, TSgt Edward B. Pullen, 1stLt Harry L. Rogers, PFC Robert H. Rothermel, Cpl James A. Sanders, Maj David H. Simmons, Capt Leland R. Smith, SSgt Michael Soley, PFC Lester I. Sowell, PFC Emil A. Stubben, 1stLt Jay J. Thomas, Capt Walter I. Thomas, Capt Nicholas G. W. Thorne (3d), SSgt Shirley M. Weaver.

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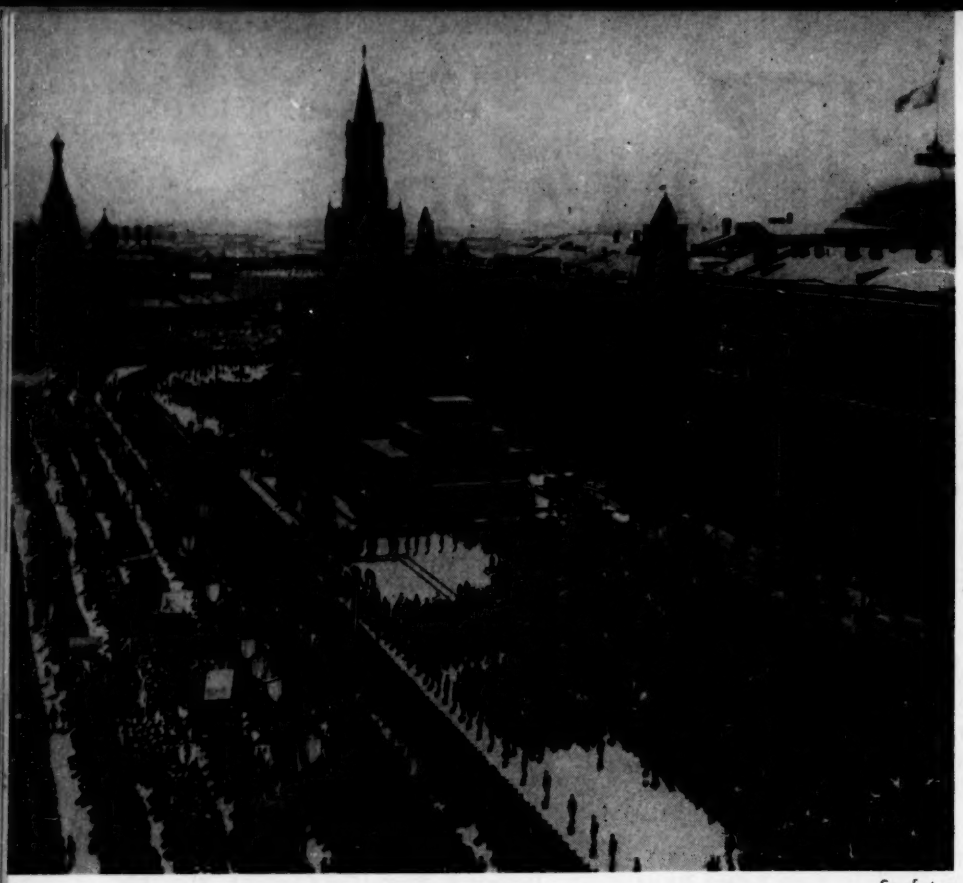


Sovfoto

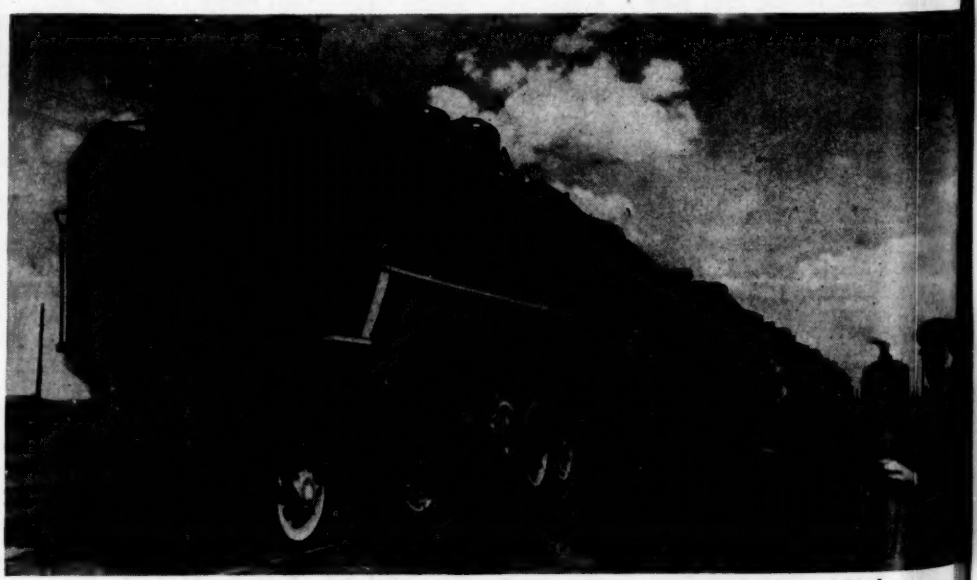
RUSSIA'S

PART I

SOVIET RUSSIA OF TODAY IS A VAST and complex nation—the product of important historical and geographical influences. In size she is a veritable titan of contemporary states, and in her vastness, she is both powerful and weak.

Her power and weaknesses can be evaluated by a study of basic geographic facts which should be considered in any strategic appraisal of the Soviet Union—geographic facts that make her a powerful nation while she flaunts a vulnerable Achilles' heel.

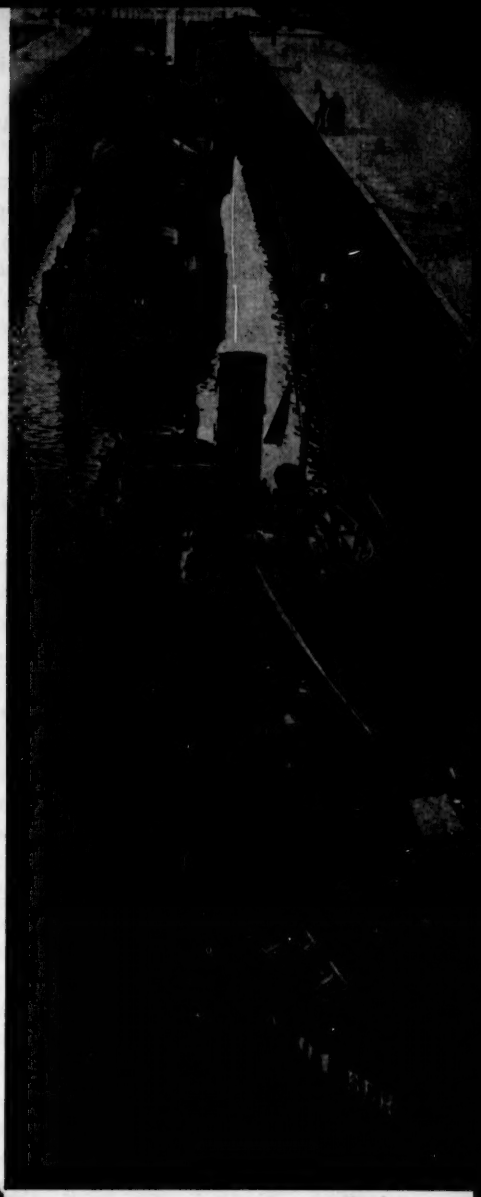
In addition to Russia's size, apparent to anyone glancing at the map, there are some other important general considerations. First, there is the matter of isolation. Surrounded by the Arctic in the north, the Pacific and mountains to the east, and by more mountains and deserts in the south, the Soviet Union is open only to the west. These physical barriers in the north, east, and south, compared with the relatively open approaches to the west, would at first glance seem to suggest that, for geographic reasons, Russia would be oriented westward rather than to the east. However, this is a clear example of the paradoxical character of Russia, for Russia is by history orient-



Sovfoto

Geographic study of the Soviet Union shows her power, yet she has one weak link which could prove to be . . .

ACHILLES' HEEL



Sovfoto

By Col J. D. Hittle

ed to the east rather than to the west. (For reasons resulting in the eastward orientation, see *Background of Russian Action,* in the *Marine Corps Gazette* of January 1952.)

By the simple fact of location and size, Russia is the most continental—in the geographic sense—of all nations. In fact, "continentalism" is the key word of Russian geography. This continentalism is reflected in extremes in temperature, large arid areas, great wastelands, restricted access to the oceans, and relatively large areas of inadequate rainfall. To realize the generally northern location of Russia, it might be well to point out that the Black and Caspian Seas, on the southwestern border, are on the same latitude as the Great Lakes in the United States; and in the most southern point of the USSR, geographic conditions resemble those of Nebraska and Utah. With these general considerations as a starter, let's look at the major aspects of the geography of the Soviet Union.

PERHAPS NOTHING BETTER illustrates the topsy-turvy nature of Russian geography than the rivers, for from the standpoint of usage, they either run in the wrong direction or, for the most part, are landlocked. Rivers flowing into the Arctic are ice-bound from eight to twelve months per year, which means, obviously, that some years there is no period of open water at the mouths. Thus the lower rivers and their mouths, still ice-bound while the upper drainage system carries off melted snows and ice, form natural dams, forcing the waters from the south to flood vast Arctic plain areas. On such occasions, it is reported that the lower Yenisei is over forty miles wide.

Ice is not only a problem of the rivers flowing toward the north. The southern Ukrainian rivers, such as the Dnieper and the Don, are ice-bound on the average of two months per year; rivers in the Moscow area are ice-bound about six months a year; even the rivers flowing into the Aral Sea, in the southern part of the country, are ice-bound about two months each year. Needless to say, such ice conditions would have an important influence on military operations in the USSR, both operationally and logistically, particularly in view of the

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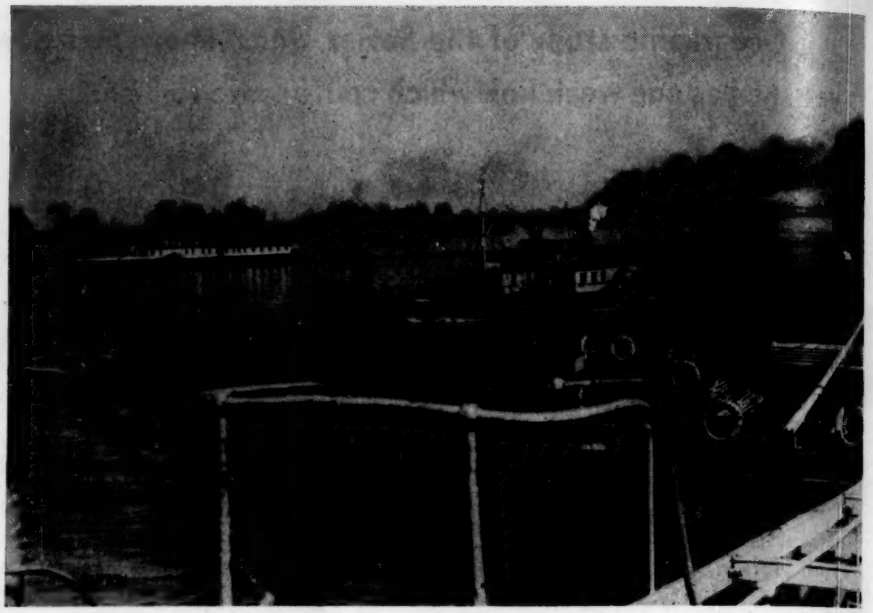
Top—Transportation link, the Stalin White Sea Canal
Bottom—A typical Russian village in the winter time

fact that waterways are a major means of transportation.

Continual effort has gone into the development of the rivers as important means of freight transport. Not only have the channels been deepened, but an extensive system of canals connects the various major rivers. At the present time, the Baltic-White Sea Canal, the Mariinsk Canals, and the Moscow-Volga and the Don-Volga Canals connect major river transport systems, permitting continuous water travel from the White Sea on the Arctic Circle to the Caspian. With good reason, Russian writers often refer to Moscow as the "Port of Five Seas." Completion of the "Great Volga" scheme will make it possible for large seagoing vessels to carry cargo from Astrakhan to Archangel and from Rostov to Murmansk.

As stated above, Russia's climatic character is a direct expression of her continental nature and her latitudinal position. Five conditions exert basic influences on the climate throughout Russia: (1) it is open to the Arctic; (2) the world's cold pole is located in Siberia; (3) Atlantic air masses; (4) extreme distances from warm water; and (5) the deserts in the south.

The cold pole of the world is located in the vicinity of Verkhoyansk, Siberia. What is probably the world's low temperature reading of minus ninety degrees has been recorded there. This cold pole, located as it is in northeastern Siberia, exerts a broad and severe influence on practically all Soviet weather for a good portion of the year. During the winters a stable and widespread high-pressure area, centering on the cold pole, becomes the dominant factor in Russian weather. Because the winter cold emanates from the region of Verkhoyansk in Siberia, we find that temperatures generally decrease, not from south to north, as is the case in the United States and most other major regions, but rather from west to east. As an example of this peculiar aspect of Russian weather, the winter temperatures in the region of Lake Balkhash, in southern Asiatic Russia, about forty-five degrees and on about the same latitude as northern Italy, has the same winter temperatures as the bleak islands of Novaya Zemyla, well north of the Arctic Circle. As another example, Leningrad, at the head of the Baltic, about sixty degrees north, has about the same winter temperatures as the northern shores of the Caspian and Aral Seas in southern Russia.



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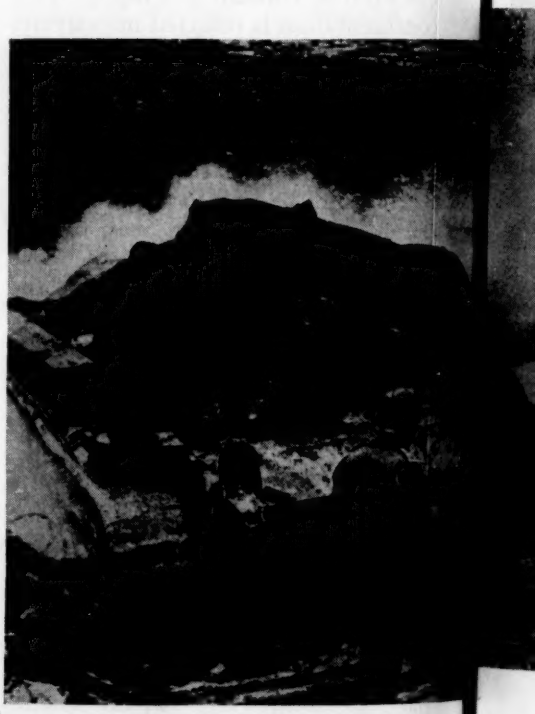
Navigation on the Belya river

From the military standpoint, this west to east decrease in temperatures would have great strategic and logistic significance. For one thing, it means that troops in the field would be exposed to the same cold intensity in many parts of southern Russia as they would above the Arctic Circle. A campaign, such as Napoleon's invasion or that of the Germans, would be faced with constantly decreasing temperatures the deeper the forces pushed eastward into Russia, even though, from the standpoint of geography, the forces move on a direct west to east axis, and consequently never head north. Conversely, in a winter campaign against western Europe, Russian forces moving eastward would move continually toward warmer temperature zones as they moved on.



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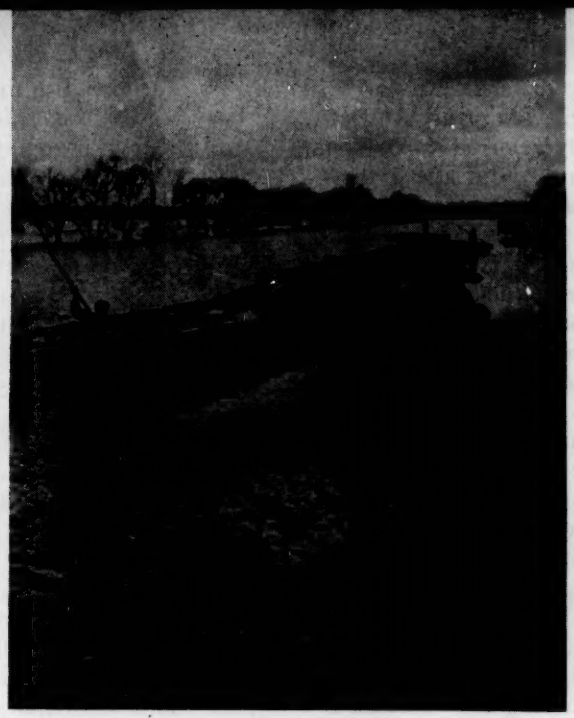
Climatic considerations—Generals Mud and Snow helped whip Hitler



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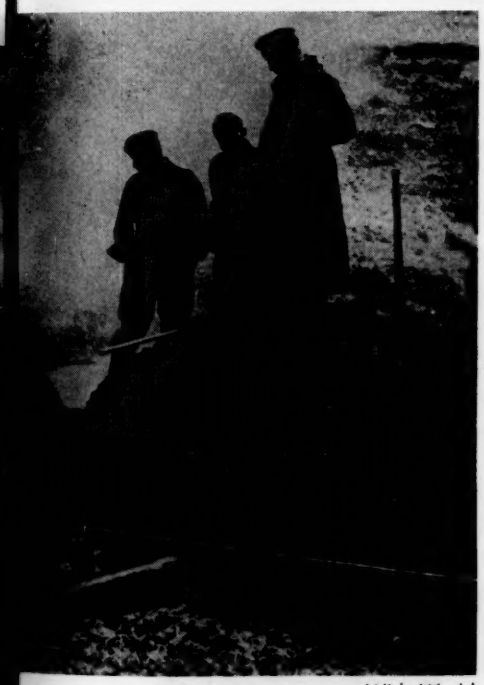
Canal connecting the Bug and the Dnieper



Wide World

Adding to its peculiar characteristics, the cold pole disappears in the summer, as a cast low pressure area supplants the winter high pressure area. At the same time as the cold pole, dominant influence in winter weather, fades, a new factor takes over as the major influence on summer weather in most of the Soviet Union. This influence is the Atlantic Ocean, and it causes summer temperatures to vary in a normal manner, decreasing generally from south to north.

Rainfall, like some other features of Russian climate, possesses characteristics peculiar to Russia. Rainfall in most of the Soviet Union varies from twelve (approximate minimum adequate for Soviet non-irrigated agriculture) to thirty inches per year. At the same time, there are extreme differences encountered throughout the country. Most of Siberia has less than twelve inches per year, while in the Trans-Caucasus region the total rises to sixty inches, and in the area of Batumi, due to the mountains, there is an annual rainfall of ninety inches.

Atlantic air masses are the source of most of the precipitation. Consequently, the rainfall diminishes progressively as the winds move toward the interior. Also, it explains why the bulk of precipitation occurs during the summer months of July and August. A study of Russian rainfall statistics dispels the all too prevalent myth of the military importance of "General Mud" during the fall season in Russia. Fall is a period of relatively less rain, and this is one of the principal reasons why, for instance, Hitler launched his attack on Poland (having a precipitation pattern similar to Russia) in September. Of the two short seasons, more mud would be encountered in the spring due to the melting of winter snows. German experience underlines the importance of this consideration in Russian military operations. The matter of rainfall is relatively more important to logistic planning in Russia due to the shortage of all weather roads, a condition to be noted later. Only in the Southern Crimea and the Black Sea shore areas is the winter precipitation heavier than in the summer.

Snow has an understandably important influence on military operations. The length of time snow is on the ground varies according to locality, but generally bears a close relation to the January isotherms. Some appreciation of snow duration can be gained from the following: along the Arctic coast, snow is on the ground about 260 days per year. This decreases to about 140 days in the Leningrad-Moscow area, about sixty in the southern Ukraine and northern Caspian shore regions, but increases to about 80 days per year in the Trans-Caucasian mountains between the Black and Caspian Seas, extending as far south as the Iranian border. On the Pacific, snow duration ranges from 220 days in the northeast coastal area to about 100 days in the Vladivostok region.

As the German Luftwaffe found out, winter in western Russia is characterized by cloudy skies. Leningrad, for instance, has on the average only thirty-nine days of clear skies per year. With as much of a clear season as there is coming in the summer months, it means practically continuous cloud cover during the winter. This obviously would have real significance in the exceution of air operations against European Russia in the bleak winter months.

The first fundamental that must be appreciated by anyone trying to understand the true nature of the Russian nation is that the Soviet Union is today a nation of many nationalities. There are about 150 identifiable national groups in Russia, ranging in size from the "greater Russians," numbering about 100,000,000, down to the native tribes in bleak northeastern Siberia, whose ranks are counted in the hundreds.

How this vast conglomeration of

peoples has been brought within the national borders of the Soviet Union is explained largely by one word—conquest. While it may be realistic to suspect that many of the racial minorities were brought under Russian rule by methods other than entirely voluntary, the western students of political science must, of necessity, recognize the cleverness with which the Reds used the racial minorities to gain acceptance of Communism and enhance Red control. Initially, the Communists wooed the minority groups by appealing to their national pride and promising independence if they would join in the revolution against the Tsarist Government, a promise yet unkept.

IN SETTING UP THEIR geographic political structure, the Soviet officials have sought to gain added support of the various major racial groups. Generally, each major group has its own political unit, called a Union Republic. There are sixteen of these Union Republics in Russia. As usual, the Communist leaders can "point with pride" to the fact that, under the Soviet governmental system, the major nationalistic groups have been, in fact, given their independence, and that they remain within the Soviet Union by free choice. To substantiate such an assertion, they have but to invite attention to the 1936 Constitution (often referred to as the Stalin constitution) which gives these republics the right of secession.

So far there is no record of any Union Republic successfully exercising its right of secession. One can readily imagine the reaction of the Kremlin if, for instance, the Azerbaidzhan Republic, in which are located the great Baku oil fields, should announce that it had decided to secede and become a part of neighboring Iran.

In keeping with the pure democracy (Communist interpretation) of the Soviet system, there is equality of all races and nationalities. But here again the facts and the theory do not always coincide. The distinction between the true Russians, largely located within the R.S.F.S.R. (Russian Socialist Federated Soviet Republic, the largest political unit) and the many national minority groups is not openly defined. Yet the result is apparent. The true Russians are frequently referred to as the "Greater Russians," and the rest of the vast population, comprised of many national groups, are called the "Little Russians." The relationship is more apparent when viewed in light of the fact that, while all Russians are brothers, the Greater (true) Russian is the big brother and the others are all the little ones. Although the Greater Russians may consider themselves the brothers of the other nationalities under Soviet rule, the fact remains that the brothers do not associate and mingle very freely.

The following table illustrates the limited degree to which the Russians have moved into the principal union republics of the national minorities surrounding the R.S.F.S.R.:

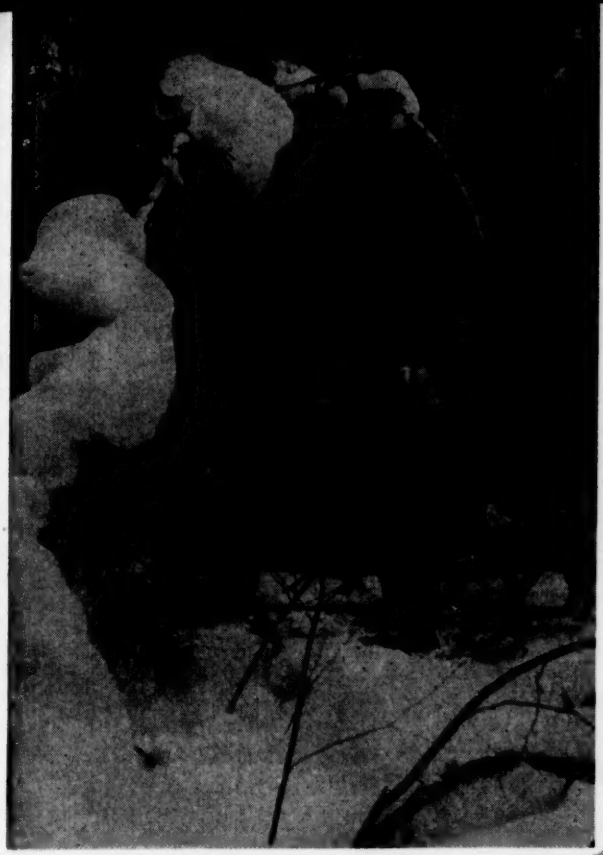
	Population in percentage	
Republics	Titular Group	Russians
Ukrainian	80	9
Byelorussian (White Russia)	81	7
Estonian	91	7
Georgian	61	4
Uzbek	76	6
Tadzhik	78	1
Turkmen	72	8
R.S.F.S.R. (for comparison)	73	73

These figures showing Russian portion of the population of the minority areas are all the more significant when it is realized that the bulk of the Russians in these various Republics are encountered in the capitals and major cities. There they function largely as the trusted Soviet political and industrial leaders.

Since the Russians are clustered in the cities, enjoying a standard of living far above that of the local national group in the rural areas, a situation is created that encourages the local groups to feel they are being exploited by their big brothers. This situation, quite naturally, could not help but create a feeling of insecurity on the part of the Soviet rulers.

One needs but recall the reaction in the Ukraine in World War II. When the German forces advanced into that area, they were frequently welcomed by cheering crowds throwing flowers and bread to the advancing Nazis. So strong was this anti-Russian feeling that it is reported that the Germans were able to employ captured Ukrainian divisions in the war against the Soviet government. According to some reports, all that was necessary to formalize the transfer of allegiance was a change of insignia. As it is widely known, what the German military accomplished in gaining the support of the Ukrainians was destroyed by Hitler's military government personnel whose cruelty and oppression alienated the Ukrainians, driving them back to the support of the Soviet government.

Obviously, a desire for independence that could manifest itself so forcefully in World War II must still exist in the Ukraine, and even though such wish for political freedom may now be latent, it must be reckoned with as a potent element in evaluat-



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Top—A hunter in Siberia. Center—a street scene in Leningrad. Bottom—Esthonian peasants farming

Black Star

ing Soviet strength and weakness.

Unassimilated national minorities must of necessity assume great importance in evaluating the true military strength of the Soviet Union. Whether they join the Soviet Union's enemies or are forced into an alliance with the Soviet, as were the Ukrainians as the result of Nazi stupidity in the last war, would be determined largely by the extent to which an antagonist of Russia understood the nature and significance of the national groups comprising, in fact, the majority of the Soviet Union's population. Should those minorities join the enemies of the Soviet Union, it could well prove disastrous for the Red leaders. Yet, should an enemy, for instance, conduct a kind of war that would alienate the minority groups, forcing them into alliance with the Soviet in defense against a common enemy, it would be a major victory for the Russian rulers and a distinct reversal to the enemy. That is precisely why talk of an all-out war calling for the mass destruction of cities is so questionable. Mass destruction directed against the populace would be against the national groups and would undoubtedly force them into an unwilling alliance with their Soviet rulers, thus presenting the Communists with a major strategic victory. The strength of Soviet Russia may well be determined in terms of the degree of cohesiveness demonstrated by the various nationalties.

In addition to the national groups composing the Soviet Union, another important population factor that must be considered in evaluating Soviet strength is found in the distribution of the peoples within the borders of modern Communist Russia. In Russia, as in most other nations, the regional density of population is a fairly sure indicator of the importance of that area from the industrial, agricultural, and military standpoint. Analysis of the relative population densities of the various areas of the Soviet Union illustrates how fallacious it is to evaluate Russian strength solely on the basis of geographic size.

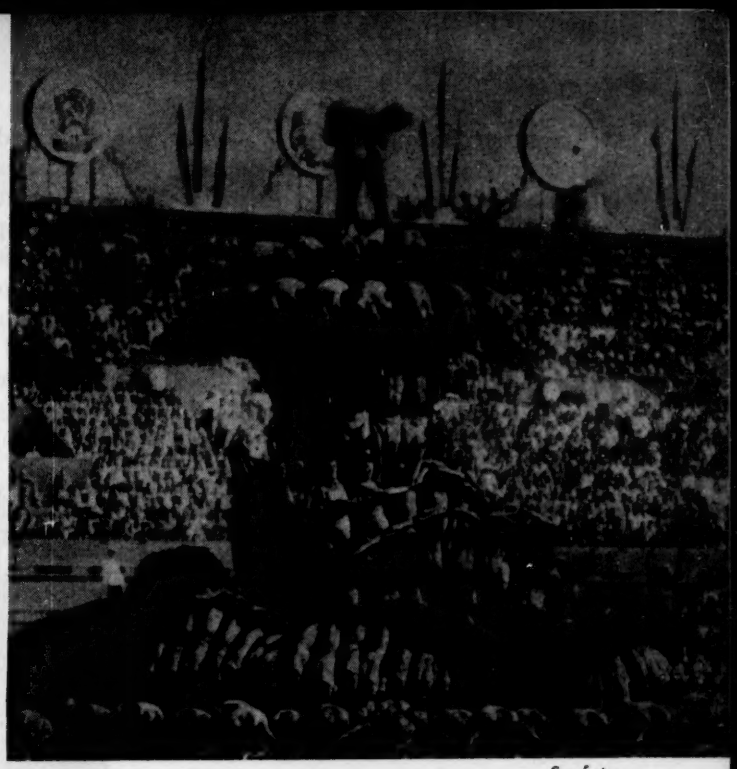
In way of comparison it should be realized that Russia is not as densely populated as the United States. Average density of population for all of the Soviet Union is about twenty-two persons per square mile. In the United States the figure is about forty-two persons per square mile. In one sense, in particular, the population distribution of the Soviet Union is similar to that of the United States; it is extremely uneven, having areas of very high density, and other areas of sparse population spotted throughout.

The fundamental feature of Russian population is the concentration of Soviet peoples in European Russia, the area west of the Urals. In this area, due to its tolerable temperature, landform, and adequate rainfall, is eighty percent of all the Soviet population. This concentration, obviously, points up the sparseness of some other vast areas eastward beyond the Urals. It also points up the fact that European Russia is today, as in the days of Peter the Great, the heart of Russian power.

IN ADDITION TO THIS "inhabited area," as the geographers often refer to European Russia, there are only two other areas of relatively high population density. These areas are a narrow ribbon along the Trans-Siberian railroad with an extension southward to the Kusbas Basin, and in the irrigated river valleys of Central Asia. The significance of the relatively few areas of high concentration comes into clearer focus with the realization that ninety-five per cent of the total population is in only one-fifth of the total area.

The extremes are found in southwest Russia where population density runs 200-400 per square mile, and in Siberia, which has an extremely low population-area ratio. The Ukraine, with forty million people, or about twenty-five percent of the population, has but 1/40th of the total territory. Siberia, in contrast to southwest Russia, has only about ten percent of the total Soviet population, and ninety percent of this ten percent is located along the Trans-Siberian Railroad and in the Kusbas. That means that in all the remainder of Siberia, one of the largest land areas of the world, there are only about 1,000,000 people. From the military standpoint, Siberia, while important to the security of the Soviet Union, is by no stretch of the imagination the critical area.

Significantly, Russia is exceeded only by the United States in the number of great cities. There are ninety-eight great cities in Russia and 106 in the United States. If the present trend toward further concentration in urban areas continues, there is no question but the size of Russian cities will continue to grow. From 1926 to 1939 the urban population of Russia in-



Sovfoto

Russia's fountain of youth

creased from twenty-six to fifty-six million. Such a phenomenal growth of cities was not an entirely voluntary process as far as the individual inhabitants were concerned, as it reflected a determined Soviet policy of expanding industrial development at the expense of agricultural production. The effect of such a policy upon agriculture will be noted later.

In addition to the national composition and distribution of the Soviet population, the continuing growth of the population is of real significance in any long-range strategic evaluation of Russian power. Not only is such growth important from solely the Soviet viewpoint, but it acquires even deeper significance when examined in relation to anticipated European population trends.

The last official Russian censuses were taken in 1926 and in 1939. Since that time there have been no official Soviet announcements of population figures for the nation as a whole. However, the present population of the country is authoritatively estimated at 230 million. By 1970 it is expected to top 270 million. If we consider the population of the Soviet Union and that of all of Europe as a whole, the comparable trends are shown as follows:

Of the total population of
Russia plus Europe
1940
Europe was 70%
Russia was 30%
1970
Europe will have 62%
Russia will have 38%

As impressive as this trend is with respect to the population as a whole, it assumes even more strategic meaning when the figures are analyzed from the standpoint of the male population of military age. Again, taking the combined European and Russian male population of military age (15 to 34 years) as the total unit, we find that:

Of the total 15-34 age group of
males in Europe plus Russia
1940
Europe's was 68%
Russia's was 32%
1970
Europe will have 58%
Russia will have 42%

Not only do these comparative trends in total population show a fundamentally significant shift in favor of the Soviet Union, but the strategic consequences are even more discernible in the case of males of military age. It simply shows that the pattern of manpower is and will continue to develop in favor of the Soviet nation at the expense of the manpower reserve of the European nations.

Most certainly this is a critical feature of the changing pattern of world power, for in spite of the fact that we may be living in the so-called "atomic age," the population of a nation, and the future trends in comparison with other powers, still remains and will continue to be a major essential in assessing national military capabilities. As long as manpower is an important factor in military power, the non-Communist world can take little comfort in the population trends of the Soviet Union.

But population in itself is not a final criterion of strength. Granted that Russia can produce a large population, the next question is whether Russia can produce enough food to maintain such a population. This leads directly to the next aspect of Russian geography—Agriculture.

(To be concluded next month)

The Marine Autogiro in Nicaragua

THE INTEREST OF THE MARINE Corps in aircraft of the helicopter type goes back some years before there was any such thing as a helicopter capable of practical flight. The autogiro came first, of course, and a group of young Marine pilots gave that early type of rotary-wing machine its pioneer test flights in the field.

The time was 1932. The place was Nicaragua. And the Marine pilots who had most to do with the autogiro were four present-day colonels then wearing the gold or silver bars of lieutenants — Frank M. June, Edward L. Pugh, Paul A. Putnam,* and Samuel S. Jack.

The OP-1, as this first Marine rotor-lifted machine was designated, flew no tactical missions. But it was tested in Nicaragua for five months by combat fliers supporting the combat ground forces of the Marine occupation troops. And its flights took it over jungle and mountain terrain infested with guerrillas who had a nasty habit of shooting prisoners.

The conflict has gone down in history as a police action, but it was grim enough at times for the Marine ground and air forces stuck with the thankless job of restoring order to the war-wracked Central American republic. Testing the OP-1 for military uses was a serious business, too, but the whimsical machine lightened the task by providing a good deal of entertainment and even comedy relief. There was always something of the zany about OP-1.

The beginnings of this type of aircraft are rooted deeply in the past. Man's dream of emulating the birds began with the rotary principle of flight instead of rigid wings. In the fifteenth century Leonardo da Vinci sketched a flying machine (never built or tested) consisting of enormous spiral wings attached to a whirling shaft mounted on a circular base. But he did not attempt to solve the problem of propulsion, and not until the late eighteenth century did the steam engine offer some hope of an adequate source of power.

This period was an age of feverish aerial experimentation, and several French inventors came up with ideas for a helicopter — a name derived from the Greek word *helix,* meaning "spiral." None of them had any practical possibilities, though a spring-driven model actually did get off the ground. Meanwhile the first successful balloon flights were made in France, and the thoughts of scientists turned to lighter-than-air flight. Balloons were used for purposes of military observation by the French Revolutionary armies, though Napoleon failed later to see their value just as he remained blind to the uses of the steamboat. It took a peace-loving American to catch the first prophetic glimpse of warfare in a new element, for Benjamin Franklin wrote in the year 1783:

"It [the balloon] appears to be a discovery of great importance and what may possibly give a new turn to human affairs. . . . Five thousand balloons, capable of raising two men each, could not cost more than five ships of the line; and where is the prince who can afford so to cover his country with troops for its defense, so that ten thousand men descending from the clouds might not, in many places, do an infinite deal of mischief before a force could be brought together to repel them?"

2dLt Frank M. June

But this concept of airborne invasion was too advanced for its age. After the interest in lighter-than-air machines subsided, the nineteenth century abounded in models of steam-driven helicopters. The first full-size machine designed to carry a man was planned by Sir George Cayley of England, but the experiment never outgrew the stage of small spring-driven models. In 1842 another English inventor, W. H. Phillips, built a 20-pound model powered by a tiny steam engine and consisting of three rotors, one for lift and two for steering. It rose some fifty feet in the air while traveling several times as far in a forward direction. Unfortunately, this creation only added to the overwhelming burden of proof that the weight of an adequate steam engine would be too great for a helicopter large enough to carry a pilot.

During the American Civil War, a Confederate officer, William C. Powers, proposed a helicopter to be used for bombing as well as observation and reconnaissance. His design was described as looking more like a plow than a flying machine. It seems to have been ludicrously lacking in practical aspects, but Captain Powers thought so highly of it that he abandoned the project for fear it would be discovered by the enemy.

Col Putnam, it may be recalled, was the Marine major in command of air on Wake when the Japanese struck in 1941.

In Nicaragua, Marines combat tested an aircraft designed to go straight up or down.

The Autogiro was a bust, but Korea proved our research was in the right direction

By Lynn Montross

Dozens of ideas for helicopters were advanced during the last half of the century, some of them so fantastic as to be incredible. In 1880, however, the most productive inventor of the age set his mind to work on the hitherto unsolved problem of providing enough power without adding too much weight. Thomas A. Edison first thought of an electric motor before concluding that it was impractical. Then he experimented with the explosive qualities of guncotton, but the only result was a premature blast that rocked his laboratory to its foundations. In spite of his failure, Edison continued to believe in the helicopter principle long after the successful experiment of the Wright brothers. As late as 1924 the great inventor declared that "once the helicopter was perfected, flight would revolutionize civilization."

At least the mistakes of the past two centuries had served a purpose, for the early 1920s found experimenters in possession of a storehouse of aeronautical knowledge. And at Kitty Hawk, N. C., on 17 December 1903, two bicycle mechanics from Dayton, Ohio demonstrated that the gasoline internal combustion engine could provide enough power to propel a man through the air. The helicopter, though the first to start, had lost the race to the machine with a propeller and rigid wings designed for airlift.

It had been a close finish, for only four years later Louis Briguet and Charles Richet of France produced the first helicopter to get off the ground with a pilot. The 1,000-pound machine consisted of a rectangular framework, a fifty-five horsepower Renault engine, and four rotors of four blades each. The first flight took place in 1907, and a year later the machine lifted a passenger as well as a pilot — a total of 1,600 pounds. But its best record was a flight of sixty-four feet at a height of fifteen, and the world had to wait until the late date of 1937 for the helicopter to catch up with the fixed-wing machine in practical possibilities.

A young Russian named Igor Sikorsky was one of the experimenters who kept on trying, and he produced two unsuccessful helicopter models before applying his energies to conventional types of aircraft after coming to America. Other inventors remained true to the helicopter principle after the experience of World War I gave a great impetus to fixed-wing aircraft. Still others put their trust in that hybrid which came later to be known as the autogiro — a machine combining small, fixed wings and a propeller with overhead rotors. Among them was a Spanish engineer, Juan de la Cierva, who succeeded on his fourth attempt in producing an autogiro that would fly. Thus on 9 January 1923 came into being the first practical rotary-wing aircraft.

Any doubts as to its performance were laid at rest when Cierva flew across the English Channel and one of his machines covered 3,000 miles in European demonstration flights. These results convinced Harold F. Pitcairn, of Philadelphia, who bought the American rights and set up his own manufacturing plant in 1929 at Willow Grove, Pa. The name "autogiro"

Twenty years is a long time in the history of military aviation. Yet the combat development of vertical lift types of aircraft by the Marine Corps covers the two decades from 1932 to 1952 — from the two-seated autogiro of Nicaragua to the big troop-carrying helicopters of Korea.

An illustrated monograph telling the whole story from official records and reports is now being prepared by writers and researchers of the Historical Branch, G-3, Headquarters U. S. Marine Corps. This article is a condensation of one of the chapters, and other articles will be presented by the *Gazette* from time to time in future issues as the material becomes available.

Readers are invited to supplement the record by sending their comments and criticisms, along with any information they may have, to the Historical Branch, G-3, Headquarters U. S. Marine Corps, Washington 25, D. C.

was originally a proprietary name, like "kodak," which soon found its way into popular usage. For the public was fascinated by the new type of aircraft after Sunday newspaper writers pictured a future in which every family would be airborne, thanks to an autogiro in the back yard.

Such a millennium was still far distant when the U. S. Navy contracted in 1931 to purchase three of the first autogiros to be turned out by Pitcairn's Willow Grove Plant. They were, in fact, the first rotary-winged aircraft to be purchased for military purposes in this country, since the Army Air Corps* did not begin extensive tests until five years later.

The story of these machines is told by official Navy and Marine documents found in the National Archives. The Navy, as might be supposed, was interested primarily in the possibilities of the autogiro for carrier take-offs and landings, submarine detection, defense of convoys, and coast patrol and rescue work. After the delivery of the first autogiro in the late spring of 1931, it was to be tested by Navy pilots at Anacostia. When the second machine arrived, the first was to be sent back to the Willow Grove factory for such experiments as the addition of landing floats and other changes to convert it into a seaplane. The third autogiro, scheduled for still later delivery, was to be flown from the factory to the Marine Corps at Quantico for field tests in Nicaragua.

In preparation, a Marine pilot and mechanic were to be sent to Willow Grove for preliminary instruction. This duty fell to Lt Pugh and Gunnery Sgt Harold Kaltenback. But the machine was not delivered until the early spring of 1932, and it went first to Anacostia. An overhauling at that field interposed further delays, so that the Marine autogiro did not reach Quantico until May.

The saga of OP-1 begins at this point. Lt Pugh was directed to give flying lessons to Lt June, the pilot destined to become chief jockey of the unpredictable machine. A young Iowan, who had graduated from the U. S. Naval Academy, Frank June had served with Marine ground forces in Nicaragua before winning his wings at Pensacola in one of the first classes to be instructed in instrument flying.

OP-1 behaved like a half-broken broncho during the new pilot's initiation. Nearly every flight ended in a forced landing apparently caused by stoppages in the fuel line. The engine was given a complete check by Sgt Kaltenback, who discovered that the fuel line had been clogged by such foreign objects as a toothpick and bits of rubber tubing, not to mention a valve put in backwards. These manifestations gave rise to the legend, which persists to the present day, that a Navy hospital corpsman was in charge of the overhauling at Anacostia and signed the repair log book.

HOWEVER THIS may be, OP-1 was restored to better health during Lt June's brief period of instruction at Quantico. Next, it became Sgt Kaltenback's duty to take the machine apart for shipment by sea and reassemble it upon arrival in Nicaragua.

There the autogiro caused an immediate and terrific sensation. As Latin American people, the Nicaraguans took great pride in a Spanish invention, and OP-1's first flights were applauded with an enthusiasm bordering upon frenzy.

The machine's initial appearance was hailed by *La Prensa*, a Managua newspaper printed in Spanish, on 28 June 1932: "At 9:00 yesterday an autogiro flew under our skies for the first time. . . . The people of the city saw it in flight and groups of curious ones gathered in the plazas and open places to watch, with interest, the maneuvers of the bird. It has a kind of windmill of four blades on its upper side, these blades drooping slightly when the machine is on the ground. The machine now in Nicaragua, arrived practically 'knocked down' on the naval transport *Vega* two weeks ago, was brought from Corinto by rail, and was put together at Zacharias Field."

Lt June's Marine colleagues, it appears, were more amused than awed by the spectacle. For *La Prensa* recorded that "the other pilots . . . saluted it [the autogiro] with a chorus of laughter when they saw it land the first time with the exact precision of a game bird."

Even after the novelty wore off, the autogiro continued to delight Nicaraguans who referred to it affectionately as the Turkey Hen. Under the date of 13 August another Managua newspaper, *Diario Moderno*, recorded that "the United States autogiro which is in this capital spent part of yesterday morning going through aerial acrobatics. The 'turkey hen' was admired for a long time by the curiosity seekers."

But if OP-1 afforded some diversion, it also claimed the serious attention of Marine pilots putting it through its paces. Then, as now, the Marine Corps was a tactical laboratory in time of peace, a force in readiness in time of war. Air was an integral part of a Marine expeditionary force, not a separate arm. Operating under the direct control of ground force officers, Marine pilots in Nicaragua and Haiti had worked out many of the techniques of close air support during the 1920s. Air drops of supplies, message pickups, and signaling by ground panels were an old story at that time, and Marine fliers initiated dive bombing nearly two decades before Nazi aviators of the Luftwaffe were popularly credited with the "innovation." Altogether, it is safe to say that some of the most effective air tactics later incorporated into Fleet Marine Force doctrine were worked out in combat over the steaming jungles of Nicaragua and Haiti.

Tests of the OP-1 were conducted throughout the summer of 1932 by a board made up of three Marine aviators. Lt June put the autogiro in competition with an O2U-1 Corsair biplane flown by Lt Putnam, while Capt (now Col, Ret.) Harold C. Major acted as senior member and referee. Lt Jack also took part in these tests on occasion, though the board report was signed by the first three.

In order to start the two-seated autogiro, the pilot engaged a clutch connecting the engine to the rotor shaft. It took several minutes to get the overhead blades spinning at the appropriate minimum of revolutions

*From 1918 to 1923, however, the Army spent large sums on the development of an early helicopter without ever receiving a machine practical enough for field tests.

Bettmann Archive

la Cierva's model—he flew it in 1926

per minute. Then the clutch was disengaged and the power applied to the propeller. The take-off had to be made while the rotor was spinning freely without connection to the engine. As the machine rolled, the pilot had to keep the tail down so as to maintain the rotor at the proper angle. If the tail was too high during the take-off, the rotor speed would drop to such an extent as "to cause the thing to fold up like an umbrella in the air," as one pilot put it.

Most of the autogiro crack-ups, in fact, occurred as a penalty of this mistake.

Once in the air, the propeller supplied enough forward speed to keep the rotor spinning without mechanical aid, and some airlift was provided by the stubby wings. When the machine landed with the aid of the rotor, it actually did have a ludicrous resemblance to a discouraged hen flapping down from a fence, so that the Nicaraguan nickname was apt.

Some of the autogiro's early enthusiasts claimed for it the merits of both the rotary and fixed-wing types of aircraft. There were profane moments, however, when the Marine pilots insisted that it had inherited the faults of both parents instead.

At any rate, the autogiro deserves its chapter in the history of military aviation as the link between the conventional type of aircraft and the true helicopter. For it was the autogiro that kept the principle of vertical flight alive until a better machine could be developed.

Some spectacular take-offs, climbs, and landings had been made by autogiro factory pilots in demonstration flights, but Lt June discovered before leaving Quantico that these performances were not typical. As a necessary prelude, the machine was stripped of practically everything except the pilot and engine, and even the weight of gasoline was kept to a bare minimum.

For purposes of military aviation, in short, one of the fatal defects of the autogiro was its limited payload. During the tests in Nicaragua the machine was flown with measured loads — sandbags representing supplies and ammunition for ground forces — in addition to the pilot, observer, and their sixty-three pounds of regular equipment. With a fifty-pound sandbag, according to the board's report, "the take-off distance averaged ninety yards and the time averaged eight seconds into a seven-mile wind. An altitude of 500 feet was reached in fifty-three seconds, and 1,000 feet in one minute and fifty-seven seconds. As the sand load was increased in fifty-pound increments, the take-off time and distance increased only slightly but the rate of climb and performance decreased materially. When a load of 200 pounds was carried, the airplane became so loggy that it was considered unsafe. From the above it was concluded that fifty pounds was the maximum weight that could be carried efficiently."

This was far short of an acceptable payload, which for current Nicaraguan operations consisted of at least 200 to 300 pounds. Furthermore, space was too limited in the autogiro for carrying baggage and mail—a routine job of the early day Corsairs in Nicaragua. OP-1 had such a slow cruising speed, moreover, as to handicap it for flying in formation or with an escort plane. This was a serious defect in Nicaragua, for Marine aircraft seldom flew singly over the bandit-infested jungle or mountains because of their lack of radio communication.

To offset these shortcomings, OP-1 showed good accuracy in measured landings. The wheels "were consistently placed within ten feet of a mark and the roll varied from zero to a maximum of fifty-five feet."

The autogiro could not hover, since some forward motion had to be maintained in order not to lose altitude. But against the wind, OP-1 could give a remarkably good imitation of hovering, and landing in a small space was the machine's most shining virtue.

Gasoline consumption "averaged seventeen gallons per hour at 1,700 revolutions per minute, giving an indicated speed of seventy miles per hour and a cruising radius of approximately three hours or 200 miles." But the board added that this was "not sufficient for expeditionary duty, as flights of 300 to 400 miles are often necessary, and in many cases additional fuel is not available except at the base of operations."

The report of the three Marine flyers was dated 22 November 1932 and forwarded to Marine Corps Headquarters in Washington by their commanding officer, Major (now LtGen, Ret.) Francis P. Mulcahy. And their conclusion was the only verdict made possible by the results of the summer's tests:

"It is the opinion of the undersigned that the chief value the OP-1 has on expeditionary duty is in landing to inspect small fields, whose value as landing areas has been recommended by ground troops, with a view to preparing the fields for other types; to evacuate medical sitting cases from landing areas that cannot be used by other types of planes; and to ferry important personnel to the same kind of landing areas . . ."

During the remainder of its sojourn in Nicaragua, OP-1 was used by the Marines chiefly for flights of convenience or even recreation. A number of Corsair pilots tried their hand. Among them were such present-day Marine officers as Col Frank H. Schwable,* Col Arthur F. Binney, Col Frank H. Wirsig, Col Millard T. Shepard, Col Frank C. Dailey and LtCol John S. Carter when they were on duty in Nicaragua twenty years ago.

Every beginner was warned that the steel pin in the rotor shaft mechanism might be snapped off when the engine was connected, and spare pins were carried in the pilot's pocket as replacements. Several near-accidents occurred during these instruction flights, but OP-1 ended its career with a humane record of never having killed anyone.

This was fortunate, since the autogiro's landing peculiarities could be dangerous to a novice. When the rotors assumed control to let the machine down, a sudden increase in engine speed could cause a torque-produced dive requiring about 200 feet altitude for recovery. Even at best, the rotors let the OP-1 down with a rocking motion which had the effect of seasickness on some pilots while making others sleepy. One beginner is said to have been lulled into such drowsiness that he landed with a bump as if he had fallen from a second-story window. Such jolts were of frequent occurrence, but pilots soon became hardened to them as well as the vibration set up by the rotors.

Even though the autogiro had been found wanting in military respects, it kept its hold on the affections of the Nicaraguan public. As a gesture of good will, the 2d Marine Brigade arranged for Lt June to make an exhibition flight during the Fourth of July celebration at Managua and land in the parade ground opposite the President's palace. Everything went according to schedule until the Turkey Hen settled down to earth. Then, with exuberant whoops, the crowd closed in, running from all sides, threatening to inundate the machine with waves of humanity.

Lt June realized that the first arrivals were likely to be decapitated by the rotor blades and propeller. He took off again without checking his roll, and luckily OP-1 made one of its most nearly vertical climbs. Several Nicaraguans had been saved from an accidental guillotining, even though they could not be saved from disappointment.

The only tangible contribution ever made by OP-1 to operations in Nicaragua occurred as the result of a misadventure. Lt June was sent on a mission to reconnoiter the Matagalpa area in the mountainous interior with a view to establishing a new landing strip. He was assured, on the strength of recent observation, that he could land his autogiro on a grassy plain "as flat as a billiard table." This description was accurate as far as it went, but the wheels of the machine sank to the hubs in a quagmire hidden by the knee-high grass.

It was the misfortune of the Marines at Managua that Lt June's passenger was their paymaster, Major John F. S. "Swifty" Norris (Ret., 1935), just on the eve of a new payday. This eagerly awaited occasion had to be postponed until the paymaster's return, which depended on the speed of the native oxen employed to pull the OP-1 out of the mud and haul in crushed stone for a runway about a hundred yards in length.

WHILE THE OXEN made haste slowly and the poverty-stricken Marines fretted at Managua, Maj Norris and Lt June were being comfortably entertained at the hacienda of a nearby coffee grower. At last the runway was ready and the OP-1 flew back with a bag of grapefruit as cargo. And thanks to the start already made, the strip at Matagalpa was developed into a new advanced field for Corsairs.

The Marine occupation of Nicaragua ended on the last day of 1932, and during the preparations for withdrawal the autogiro was taken apart by Sgt Kaltenback for shipment to Quantico. There is little further mention of OP-1 in Marine records until 6 November 1933, when Capt Francis E. Pierce (Col, Ret. 1938) reported to the Major General Commandant after being detailed as artillery observer "to test the use of radio telephony — on an autogiro as a spotting platform for observation of the fire of 75mm artillery." These tests were conducted during the annual firing of Battery C, 1st Bn, 10th Marines, at Fort Hoyle, Md., from 2 to 14 Oct 1933. Although a makeshift radio telephone installation had to be made, Capt Pierce reported that "the equipment functioned perfectly on the nine separate flights required for tests and two days actual artillery spotting. Tests made over the period of the firing showed that spotting by radio telephone was entirely feasible and considerably faster than by radio telegraphy."

Once again, however, OP-1 was found wanting. For Capt Pierce, after listing his objections in detail, reached the conclusion "that the autogiro in its present form is not satisfactory for artillery spotting due to its restricted field of vision and relatively slow speed, which makes it more susceptible to antiaircraft fire than the conventional airplane."

This disappointing performance seems to have been OP-1's last test. At any rate, a search through Marine records has not revealed any further mention, and it is the recollection of Marine officers that OP-1 ended by smashing up in 1934. Probably some unwary pilot neglected to keep the tail down.

The two Pitcairn autogiros purchased by the Navy also receded into the mists of history, leaving behind them a record of unsatisfactory performance. A flight test report from Anacostia, dated 24 October 1931, gave the results of comparative tests between the XOP-1, as the Navy autogiro was designated, and a training plane of conventional type. The latter proved to be superior in rate of climb, angle of climb, speed, gliding angle, and ability to get out of a small, enclosed area. The autogiro surpassed only in length of landing roll and ability to land more accurately.

The Navy, according to a memorandum of 22 March 1932, sent by Material Division via Plans Division to Assistant Chief of Bureau of Aeronautics, had been primarily interested in reducing the stalling speed of sea-

*Reported MIA in Korea in 1952.

planes. But tests at Anacostia indicated that the XOP-1 had "many disadvantages" either as a seaplane or catapulted craft.

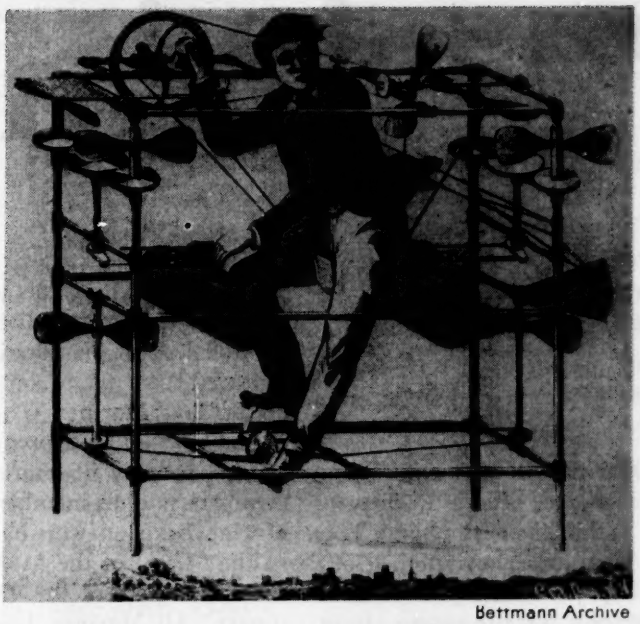
Bureau of Aeronautics records of 1932 also show that an inquiry was made as to whether the autogiro could land on the roof of the main Navy Building in Washington, which was a venerable appearing structure even at that time. This issue was sidestepped with the explanation that the roof was too cluttered up by ventilators for any such antics.

One of the Navy autogiros cracked up for the second and last time in 1932, and it was recommended on 7 August of that year that the other be put in storage, since "no tests are being conducted in connection with the plane at the present time, and none . . . are contemplated." Authority was granted and the final reference to Autogiro #8850 appears on 4 January 1940, when it was removed from the Navy list.

The Navy tried again in 1935 with a later model of Pitcairn autogiro known as the XOP-2. Tests were made in hope of obtaining a flying ambulance capable of landing on the deck of a battleship or cruiser if special provision were made. But the new model was soon found unsatisfactory and even dangerous because of the vibration set up by the rotors. Two years later it was recommended that the XOP-2 be flown to Norfolk for storage, and its epitaph was an anonymous penciled comment in the margin:

"Fly it, hell! Better crate the thing and ship it."

The interest of the U. S. Army Air Corps in the autogiro commenced in the spring of 1936. Exhaustive tests were made during the next three years with various models of Pitcairn and Kellett machines. The Kellett wingless model, known as YG-1, was sent to Fort Sill for tests with the artillery; to Fort Riley for tests with the cavalry; to Fort Benning for tests with the infantry; and to Fort Knox for tests with an armored unit. On 15 April 1938 an autogiro school was started at Patterson Field, Fairfield, Ohio, by the Air Corps for the training of both pilots and mechanics. But landing accidents kept on occurring, and



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1885 model—Ayre's aerial machine never flew

nearly all of the tests continued to be unsatisfactory. Lack both of room and weight-lifting capacity for a minimum payload was the chief objection to Kellett as well as Pitcairn models. And the final opinion of Army Air Corps aviators appears to have agreed with a report submitted in December 1936 by an Army flyer, Col Hollingsworth F. Gregory, who later led the country in total autogiro flying hours.

"THE AUTOGIRO," he concluded, "does not have any tactical value in its present form, as it will not carry a tactical load of equipment." Thus it came as faint praise when Col Gregory added, "I can see only one use of the present autogiro: training of personnel in the art of handling and maintaining the autogiro."

Marine Corps records show that in 1935 the Kellett Autogiro was tested by Capt Major and Lt June. Lt June reported on 21 June that the Kellett "appears to be much better in all respects than the OP-1. It appears to still have the same objections as the OP-1 in that it still requires a comparatively long take-off run when heavily loaded. Before stating a definite opinion as to its possible usefulness I would prefer to see it demonstrated under full load conditions, on rough fields and in rough air."

After a fifteen-minute flight, Capt Major also found the Kellett machine an improvement over the OP-1. But the tests were not convincing, and the official last word of the Marine Corps on the subject of the autogiro was expressed in a memorandum to CO, 1st Marine Brigade, Fleet Marine Force, from LtCol (LtGen, Dec. 1949) Roy S. Geiger on 12 July 1936:

"To date no type of autogiro has been demonstrated which will carry a reasonable fuel supply and military load and at the same time retain its peculiar characteristics of taking off and landing in a restricted area and hovering over a given spot. Until such time as this type of aircraft can carry a satisfactory military load and retain its flying characteristics, its use by the Marine Corps is not recommended."

That time was close at hand, for the first practical helicopter of history, as distinguished from the autogiro, was to be flown the following year in Germany. Thus in 1936 the brief and troubled day of the autogiro was nearly at an end.

The Marine flyers in Nicaragua had conducted some of the earliest tests of the autogiro, and the only trials to be made in the field. As compared to other branches of the military service, of course, the Marine Corps had the most limited experience of all with this type of aircraft. But the conclusions reached by Lt June and his colleagues did not err, and their findings were upheld by Army and Navy results of the next eight years. USMC

passing in review

BOOKS OF INTEREST TO OUR READERS

Korean Cartoon Humor . . .

LEATHERHEAD IN KOREA — SSgt Norval E. Packwood, Jr., 79 pages, illustrated. Marine Corps Gazette, Quantico, Virginia. $1.50

As any Marine will tell you, a sense of humor is a piece of equipment you can't do without in combat. The ability to "stay loose," to laugh it off, and get the job done in spite of weather, terrain, or the enemy, is in essence what is often termed morale . . . . that intangible something that makes or breaks the individual fighting man. Through personal contact with the men of the 1st Marine Division during operations in Korea in 1951, Sergeant Packwood has uncovered, set down in pen and ink, and assembled in a bound edition, some fine examples of combat humor entitled *Leatherhead in Korea.*

This book of cartoons is a sequel to *Leatherhead in Boot Camp,* which sold some 30,000 copies. Leatherhead is well dug-in and nailed down Stateside . . . . then comes Korea, which pulls the nails from his plank, and catapults him and thousands of other Marines into combat. On the way to Korea, Leatherhead is projected into

the organized confusion of Camp Pendleton, the never-to-be-forgotten experience of life aboard a troop transport, one's first combat landing, and that phenomenon peculiar to Korea . . . . rotation.

That Sergeant Packwood can draw is indisputable. *Leatherhead in Korea* proves that he can also write. His captions are equally as well turned out as the expressions of bewilderment, fear, avarice, discouragement, joy and infinite boredom that he has captured and placed on the faces of his combat Marines.

Leatherhead in Korea will, in the main, probably be more enjoyed by members and ex-members of the 1st Marine Division who have seen duty in the "Land of the Morning Calm," than by others of the Corps less fortunate. All Marines, however, unless completely devoid of a sense of humor, will get many a hearty chuckle from Sergeant Packwood's fine book.

Reviewed by Maj G. P. Averill

Cloak and Dagger . . .

SPY CATCHER — Oreste Pinto, 213 pages. New York: Harper and Brothers. $2.75

Called by Eisenhower "the greatest living authority on security," the author presents in *Spy Catcher* a true adventure of espionage and spy catching during the second World War.

Oreste Pinto stepped into World War II as a counter-intelligence agent in Britain where he was immediately concerned with the thousands of refugees pouring into that country from the continent of Europe. Sifting Nazi spies from the throng of true unfortunate persons fleeing to the Island was the main task of Col Pinto.

Later in the war, Pinto served as head of the Netherlands Counter-Intelligence organization on the Continent, where it was attached to SHAEF.

In fulfilling his task of catching Nazi spies Pinto deals with all aspects of counter-intelligence. In each case the author unfolds in his book, he brings out the methods used by foreign agents in their attempted deception of allied intelligence men. He relates to what lengths an agent will go and what minute details he will work to perfect in order to carry out the job he has been assigned. The amount of preparation a foreign agent will put into his work is almost incredible.

Col Pinto was directly responsible for the execution of seven spies and the sending of many more to prison during the war.

In the fall of 1940 Hitler began drawing up a plan for the invasion of England under the code name of Operation Sea Lion. To further this plan, German agents were sent to England seeking advance information on coastal installations. They tried to usher themselves into the country along with refugees from France, who were landing in a small but steady stream on the shores of England.

Often times receiving valuable leads from resolute agents in France, Col Pinto and his staff went to work. And from this work came the eight tales of true adventure Pinto considers most exciting and yet typical of his counter-espionage.

The best example and most exciting story of Col Pinto's intelligence work was the exposure of a fabulous Dutch resistance hero, King Kong, who brought about one of the most costly defeats of the Allies during the war. His betrayal of an airborne attack on Arnhem caused the death of seven thousand troops and prolonged the war in Europe for a possible six months.

Christian Lindemans was a Dutchman whose name was revered throughout occupied Europe for his fearlessness and brute strength used in success coups against the Germans.

Pinto's first encounter with Lindemans, alias King Kong, was in the liberated city of Antwerp. Pinto was in charge of a camp set up to hold refugees being detained for screening purposes, to weed out Nazi agents. King Kong was demanding, of the sentry on duty at the camp, the release of two women prisoners with whom he wanted to drink, whether or not they had been screened.

Pinto, on seeing him badgering the

sentry and trying to persuade him to evade the very reason for which the camp was established, dealt brusquely with him. He told Lindemans to get out, asked him why he was wearing Dutch captain's insignia to which he had no right, and ripped the insignia from his shoulders. The great hero of brute strength, who had never been known to back down from a fight,

meekly turned away and didn't say a word in protest.

This showing of meekness led to his exposure, for such an unexpected reaction caused Col Pinto to wonder about the great King Kong. After an investigation lasting many months, the truth of the traitor of Arnhem was revealed. A man so far above suspicion that high Dutch officials refused to believe he could be a traitor, Lindemans committed suicide two days before his trial, having previously confessed to the brutal crimes of betraying his comrades and other allies to the Germans.

The author explains in his book the methods used in determining the guilt of a foreign agent and stressed that the guilt must be proved, which often times was a difficult task.

Oreste Pinto's book is well worth reading. His commentaries and true tales of spy catching are of great importance today as counter-intelligence proves itself to be an art on which many lives may depend.

Reviewed by Lt John F. Brah

Books on Parade

History of the U.S. Marine Corps *LtCol Clyde Metcalf.* Covers the history of the Marine Corps from before the Revolution to the activities of the Corps in China in 1939. **$5.50**

Landing Operations *Dr. Alfred Vagts.* A source book and text for students and masters of the art of amphibious warfare. It is a complete history of landing operations from earliest recorded ventures to the epoch making days of 1945. **$7.50**

Leatherhead In Boot Camp *SSgt Norval E. Packwood, Jr.* You've known a lot of "Leatherheads" in your time. Follow this one through Boot camp. What happens to him has happened to you but at the time you probably didn't have the time to laugh. Enjoy this at your leisure. **$1.00**

Unit Histories The bookshop now stocks unit histories of all Marine Divisions. Prices range from **$5.00** to **$6.50.**

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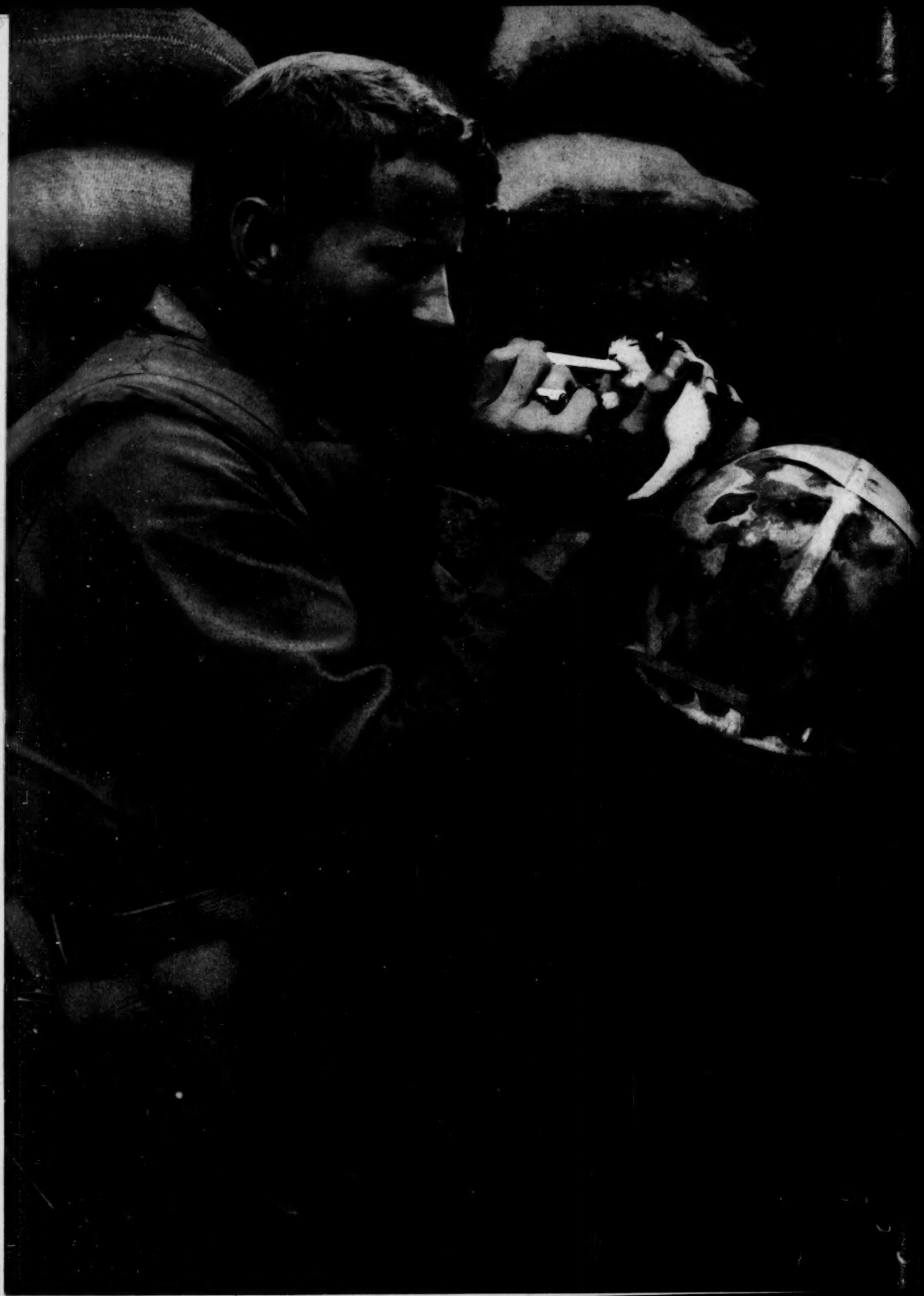
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